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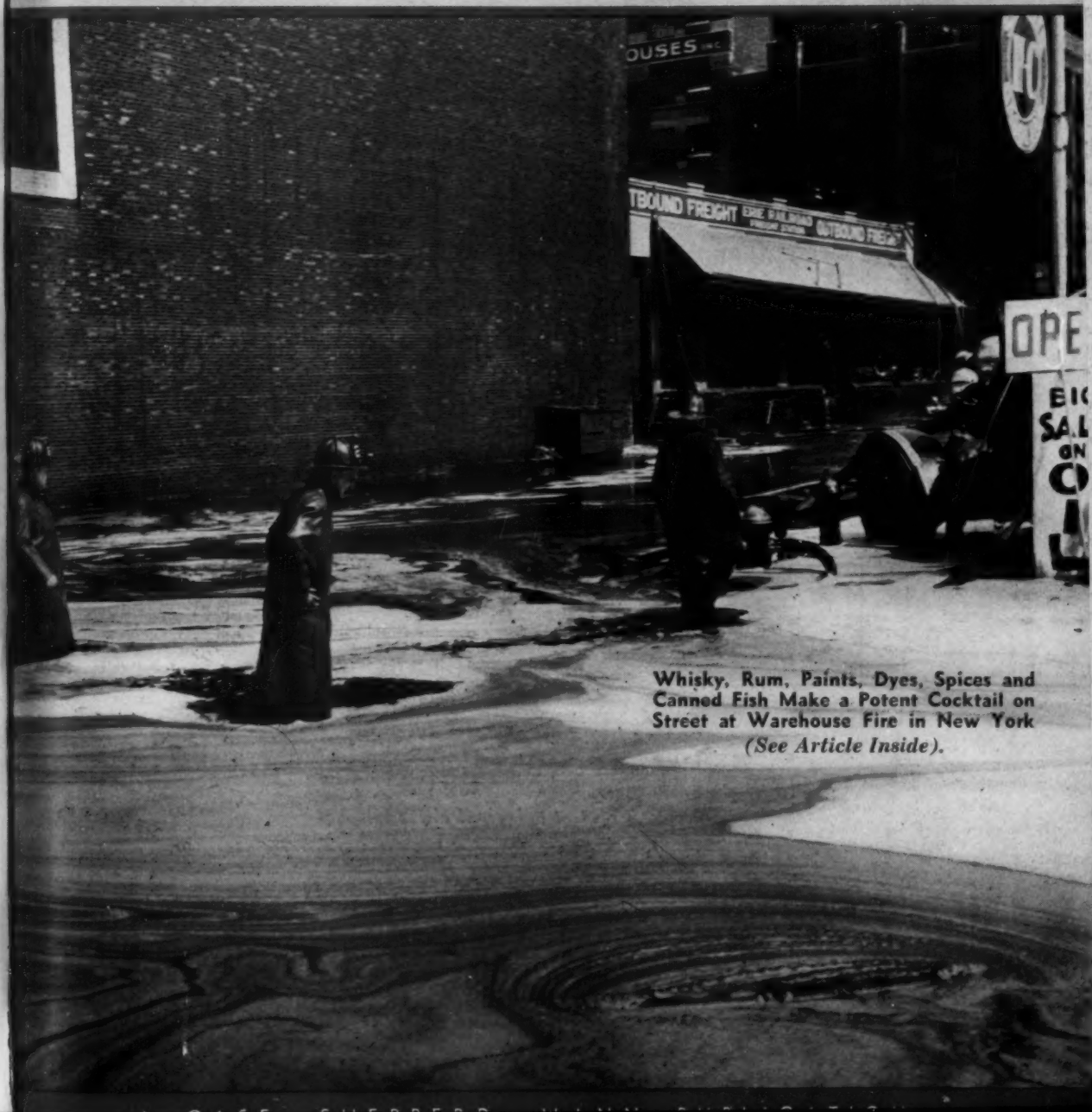
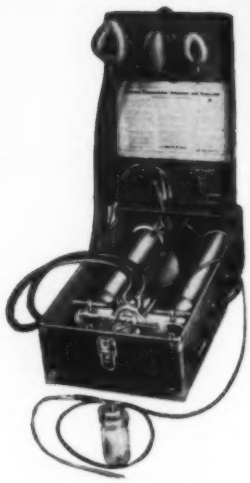
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

MAY, 1945



Whisky, Rum, Paints, Dyes, Spices and Canned Fish Make a Potent Cocktail on Street at Warehouse Fire in New York
(See Article Inside).



Preeminence in Resuscitation!

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RESUSCITATOR

Today enjoys a unique position in the field of life-saving. That is why it was chosen by Portland Fire Department's Jay Stevens Disaster Unit, the world's finest rescue rig; Roanoke's Life Saving and First Aid Crew, recently written up in Reader's Digest; Texas' famous Harris County Emergency Squad, and hundreds of other leading fire departments.

Let us demonstrate it at your next meeting so you can see what it will do for your department and your community.

J. H. EMERSON COMPANY

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YOUR MARK OF ASSURANCE

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How FEDERAL Sirens are designed for life-saving dependability

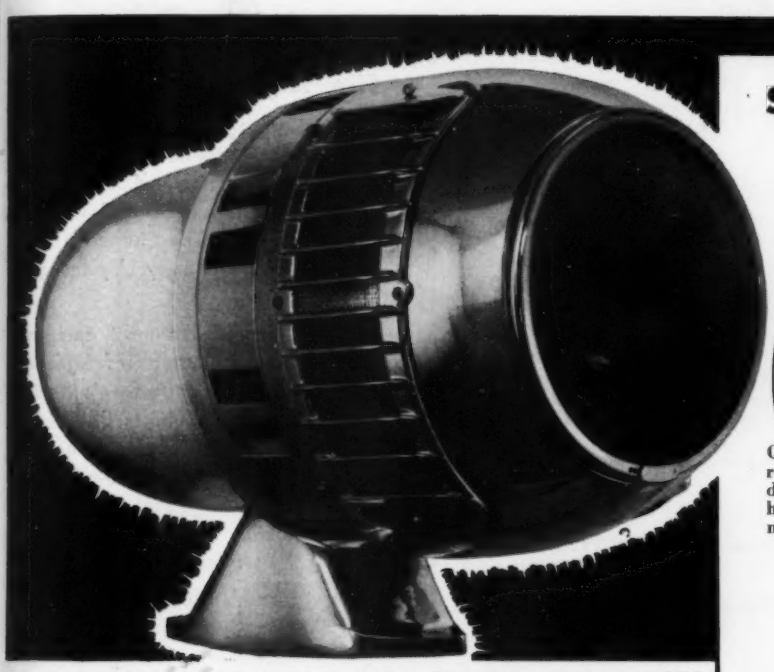

Illustration shows the handsome Model C-5, Coaster Siren. Clutch release on rotor permits full 3-minute roll; electric coaster brake if desired. Flashing red light or grille front. Size: 16" long, 9" high; weight 25 lbs. Massive; durable; one of Federal's most powerful sirens for emergency vehicles.

The instant that separates safety from danger is so short that a vehicle siren must have the clearest, most recognizable tone possible, and the siren must be absolutely dependable.

Federal Sirens are meticulously designed and accurately built. The results are instant starting, long life, dependability, and a deep, powerful tone that penetrates far ahead, through other traffic sounds. For penetration, clear, true pitch is essential. Federal gets this with square, knife-edge ports, accurately spaced around rotor and stator; with thin, smooth blades; and with individually balanced rotors to avoid muffling vibration.

Handsome streamlined housing protects and encloses all working parts, and lends massive appearance to this big siren. Federal makes many types of sirens, at various prices. Choice of coaster or regular models; flashing or motor-driven oscillating lights; various mountings. Federal features assure greatest possible safety, dependability; longest trouble-free operation. Write for details and prices today—get the booklet at right.

SOME FEDERAL FEATURES

THIN SMOOTH BLADES

Cast aluminum or die-cast zinc alloy rotors, accurately machined, individually balanced. Thin, smooth blades handle large air volume with minimum current consumption.

KNIFE-EDGE PORTS

Square knife-edge ports assure even cut-off and true-pitched penetrating roar. Ports are spaced at exact intervals around rotor and stator, and balanced with motor speed for correct deep pitch throughout entire tone range.

Heavy duty long-life motors; ball bearings. Vehicle models 6 or 12 volts DC; others from 6 to 250 volts DC or 25 or 60 cycle AC.

Get this Book Free

Details, illustrations, and prices on this and other types of Federal Sirens, horns, and signals. Write today.

FEDERAL ELECTRIC COMPANY, INC.

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FIRE ENGINEERING

A Consolidation of Fire and Water Engineering, The Fire Engineer and Fire Protection

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FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

Fire Engineering Reports—

THE other day in Findlay, Ohio, they tossed a torch into a 93-foot tank containing nearly 4,000 barrels of oil. In a few minutes it was an inferno of heat. They turned a few valves and almost as quickly the fire was out.

- This — one of the most comprehensive large-scale tests of fighting oil fires ever conducted — is being reported by FIRE ENGINEERING in keeping with its policy to bring its readers the best in exclusive editorial features—a policy that has made this publication invaluable to a fact-seeking fire service for over 65 years.
- Next month's issue (June) will contain the long-looked-for-portfolio of fire station design, and plans with feature articles on "tomorrow's fire houses". Don't miss it!

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering, Sewage Works Engineering*, etc. ¶Subscription price U. S. and Latin America, $2.50 a year; Canada, $3; Foreign, $3.50; Single copies, 25c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879. ¶Contents of this issue copyrighted, 1945, by Case-Shepperd-Mann Publishing Corp. President and Advertising Director, KARL M. MANN; Vice-President and General Manager, I. HERBERT CASE; Secretary and Editorial Director, FRED SHEPPERD; Assistant Advertising Director, WALTER H. FREDRICKS; Advertising Manager, WILLIAM J. GIBSON; Circulation Manager, W. H. TOPHAM. CHICAGO OFFICE: W. S. CLEVENGER and L. M. ROCHE, 6 No. Michigan Ave., Chicago 2, Ill.; SAN FRANCISCO: CHARLES H. WOOLLEY, 605 Market Street, San Francisco 5, Calif.; LOS ANGELES: AUGUST HAUBIN, 6000 Miramonte Blvd., Los Angeles 1, Calif. ¶Printed in U. S. A.

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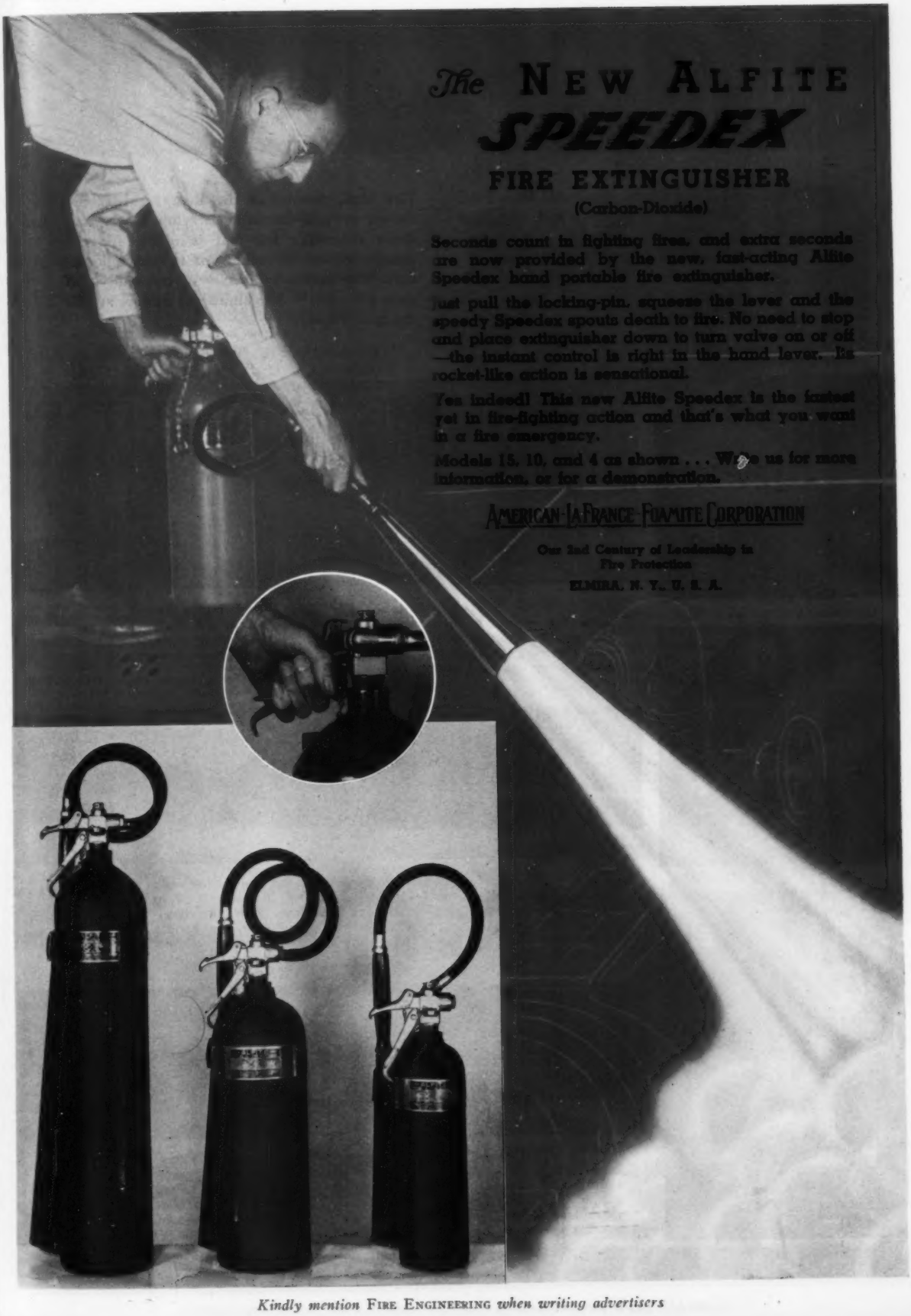
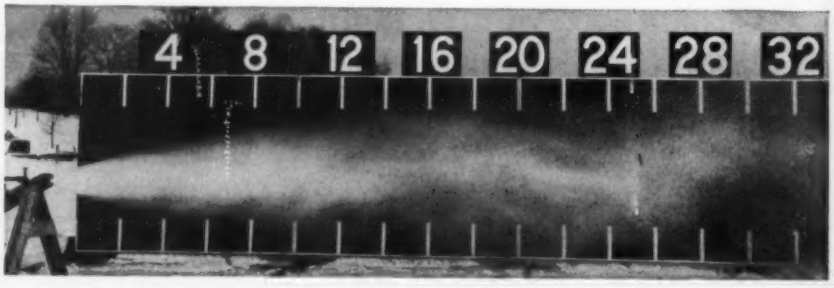

The NEW ALFITE
SPEEDEX
FIRE EXTINGUISHER
(Carbon-Dioxide)
Seconds count in fighting fires, and extra seconds are now provided by the new, fast-acting Alfite Speedex hand portable fire extinguisher.
Just pull the locking-pin, squeeze the lever and the speedy Speedex spouts death to fire. No need to stop and place extinguisher down to turn valve on or off —the instant control is right in the hand lever. Its rocket-like action is sensational.
Yes indeed! This new Alfite Speedex is the fastest yet in fire-fighting action and that's what you want in a fire emergency.
Models 15, 10, and 4 as shown . . . Write us for more information, or for a demonstration.
AMERICAN-LA FRANCE-FOAMITE CORPORATION
Our 2nd Century of Leadership in Fire Protection
ELMIRA, N. Y., U. S. A.

THE REAL STORY OF FMC

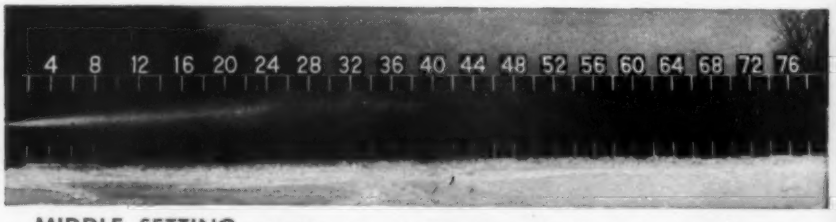
Don't confuse the results obtainable from FMC High-Pressure Fog Fire Fighting with any other system. There's nothing else like it for speed, for efficiency, for all-type fire protection.

These unretouched photographs show various applications of high-pressure fog as it is actually discharged from a standard FMC Fog Fire Gun. Several of the many settings are shown proving the true carrying power and dense steam-like fog that is usable for the speedy, efficient quenching of various types of fires. The standard capacity of one gun (two guns per unit) is 30 gallons per minute at 600 lbs. gun pressure.

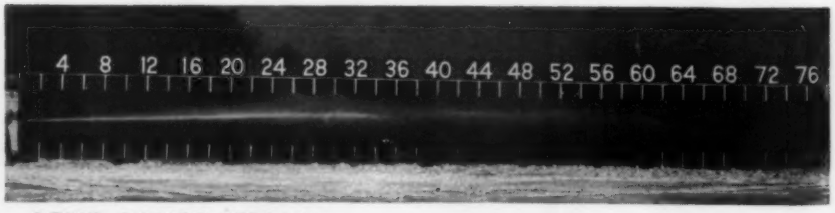
All of our claims for the effectiveness of high pressure refer only to the FMC System



WIDE FOG CLOUD. Not a hollow cone spray, but a fine dense fog with a harmless amount of entrained air at the blaze. Has an effective range of 20 to 24 feet. Imagine fighting a fire with this closely-packed fog! The fire couldn't help but cool down and smother out, and without water damage.



MIDDLE SETTING. Combination of distance, wide fog and density. Not a hollow cone! Has long range effectiveness of 30 to 40 feet. No harmful entrained air at the blaze. Very effective—reaches fire without endangering firemen. One man can handle easily. Water can be placed where it is needed most. Puts fires out without usual water damage.



LONG RANGE STREAM. Necessary only for great distance. Has reach of 50 to 60 feet. Has tremendous carrying power, penetration and effectiveness. Still is fire-fighting fog—making every gallon do maximum work. Used to reach "hard-to-get-at" fires. Uses much less water. No harmful entrained air at the blaze. One man handles gun and hose in moving around at fire.

BUILDERS OF BEAN HIGH-PRESSURE

HIGH-PRESSURE FOG FIRE FIGHTING

The FMC High-Pressure Fog Fire Fighting System—originated by the John Bean Mfg. Co.—has revolutionized fire fighting technique.

In fighting fire with fog—it's the pressure that counts! And—only the FMC High-Pressure Fog Fire Fighter packs the needed punch to produce and maintain *800 lbs. pump pressure*—better than *600 lbs. nozzle pressure.*

The high pressure gives you a combination of high velocity and finely-atomized water—just what you need to *blast, cool* and *smother* flame. Every droplet of water is broken up into thousands of tiny particles that can be *"blasted"* into the source of the fire.

Investigate! Write—*today*—for complete information.

★ ★ ★

IT'S THE PRESSURE AND THE PUMP!

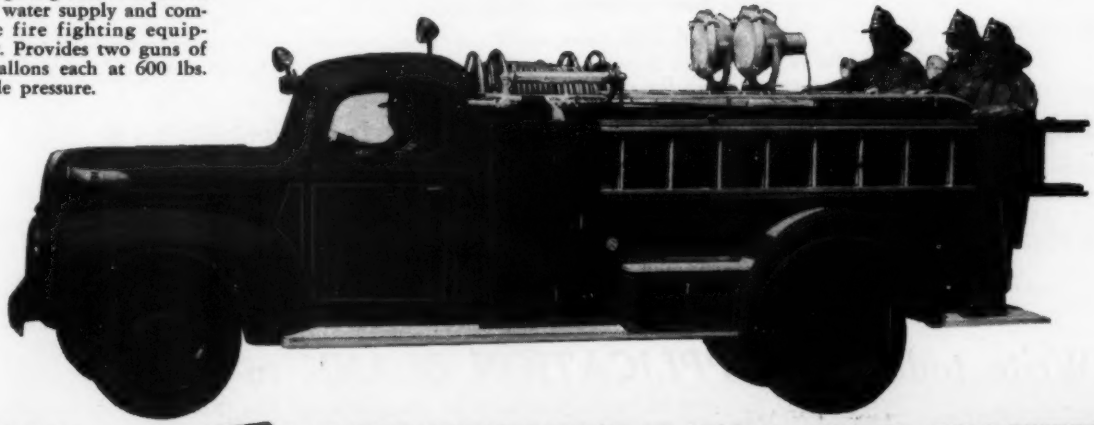
800 LBS. AT THE PUMP! That's a pretty tough job for any unit. But—the FMC High-Pressure Pump is built to deliver and maintain that pressure. The reason? This pump—built only by Bean—is different from all other pumps and is designed especially for high-pressure work by high-pressure pump engineers.

600 LBS. AT THE NOZZLE! The FMC Fog Fire Gun—built only by Bean—is designed especially for high-pressure work.

Note These Features:

1. **PROTECTIVE SPRAY.** Special spray protects face and shoulders from heat.
2. **ADJUSTING BARREL.** By turning barrel, flow can be changed from a straight "power" stream to a close-up fog for any type of fire.
3. **TRIGGER GRIP.** Gives natural position to arm and grip and is easy to hold.
4. **GUN LOCK.** Stream can be set in any pattern and locked there if desired. Relieves arm muscles.
5. **HOSE SWIVEL.** Eliminates bothersome twisting of hose.

STANDARD FMC FOG FIRE FIGHTER. A self-contained fire fighting unit. Carries its own water supply and complete fire fighting equipment. Provides two guns of 30 gallons each at 600 lbs. nozzle pressure.



FMC *Original* HIGH-PRESSURE FOG FIRE FIGHTER

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

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PUMPS FOR OVER SIXTY YEARS

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The Voice of the Fire Service Since 1873

WE NEED YOUR HELP

Our immediate aim is to make the citizens of every community, large or small, realize that firemen need more than courage to protect lives and property.

Through personal contact with Government, State and Provincial officials, we are actively creating a public consciousness of the value of adequate fire regulations and modern equipment.

Much has been accomplished — much more must be done. We need the help of every single person interested in the Fire Service.

YOU WILL WANT TO BECOME A MEMBER

BECAUSE . . . the Association is both the stimulant and the exchange for new ideas in fire prevention and fire fighting.

. . . you will have the friendship and backing of thousands of persons like yourself who are interested in the advancement of the Fire Service.

. . . the Association represents your interests in national affairs and through the Association, your opinions and voice will be heard.

. . . you can advance your knowledge and possibly your position by taking advantage of the educational material sent to members free of charge.

. . . members have the privilege of asking help or advice on technical problems and it is given to them by experts without charge or obligation.

. . . the IAFC, through newspapers and radio, is making every effort to publicize the needs of the Fire Service and, with your cooperation, can help you build up your own community's fire department and its efficiency.

Eligible for: *In Unity There Is Strength*

ACTIVE MEMBERSHIP

Municipal Fire Chiefs; Chiefs of Insurance Patrols; Industrial Fire Chiefs; State and Provincial Fire Marshals.

ASSOCIATE MEMBERSHIP

Assistant Chiefs and all other Members of Fire Departments; Any City Official; Representatives of Firms and Corporations interested in fire protection; Individuals interested in fire extinguishment and fire prevention.

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FRED SHEPPERD, Engineer-Manager, International Association of Fire Chiefs
24 WEST 40th STREET, NEW YORK 18, N. Y.

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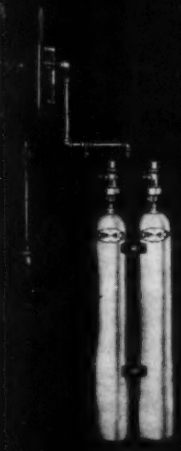


HOSE REEL SYSTEM

PRESSURE OPERATED FIRE EXTINGUISHING SYSTEM

MODERN FIRE PROTECTION *NOW AVAILABLE*

At long last, C-O-TWO Modern Fire Equipment is available for industry in general. Many enterprising manufacturers know now that this all-out fire protection assures fast, positive fire-killing . . . without damage to materials or machinery. No clean-up or mop-up after a fire and no shut-down.

C-O-TWO smoke detecting and carbon dioxide systems, hand and wheeled units, hose rack and hose reel extinguishers have had a successful workout with the Armed Forces. The trial by fire under the most exacting demands of war has proven that C-O-TWO can take it and hand it out. Write for particulars.

C-O-TWO Kills Fire . . . Saves Lives
It's Safer—It's Faster—It's Modern

WaterFOG AIDS FIREMEN IN *Spectacular "Rescue"*

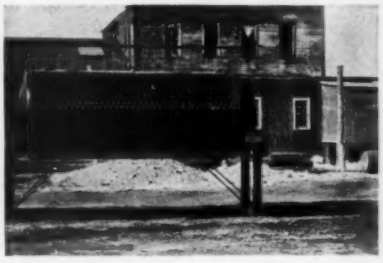
There's an airplane inside that inferno—a dummy plane drenched in gasoline and then set on fire at the New Haven Fire Department's new training grounds.

Rockwood WaterFOG, delivered from two extension applicators, envelops a fireman who enters the roaring flames to save a dummy pilot, then rapidly cools and confines the blaze.

OTHER TESTS SHOW HOW QUICKLY

WaterFOG

SMOTHERS FLAMMABLE LIQUID FIRES



Tank and trench are sprayed with gasoline under pressure.

After gasoline has been set afire, WaterFOG extinguished the blaze.

Speedier extinguishment of flammable liquid fires and an approximate 50% reduction in water damage are predicted by Chief Paul Heinz of the New Haven (Conn.) Fire Department, now that he has equipped his department with Rockwood WaterFOG nozzles and extension applicators.

WaterFOG nozzles make water effective against flammable liquid fires by transforming it into myriads of tiny particles—far smaller than spray—with tremendous heat-absorptive power. There's no splashing—a cloak of cooling, smothering fog falls gently over the combustion area, quickly controlling and confining the fire.

Industrial plants, too, protect lives and property with WaterFOG. Rockwood installations of fixed piping and WaterFOG heads are used by hundreds of refineries, chemical plants, utilities, etc. They are approved by Underwriters' Laboratories and Associated Factory Mutuals. Write for Bulletin 123. *Fire Officials and Executives!* Colored movie (16 mm.), showing tests of Rockwood WaterFOG, are available to city officials and business executives.

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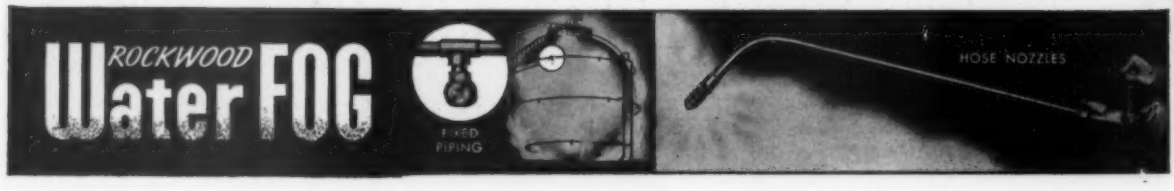
Specialists in Fire Protection Engineering Equipment and Installation since 1907

Water Engineered by Rockwood Cools. Confines. Smothers Oil Fires



MACK'S ON GUARD IN SCHENECTADY!

Nothing less than the best in fire-fighting equipment is adequate for a modern, progressive city.

For 35 years, Mack Fire Trucks have been *built to be the best!* And for 35 years Mack fire-fighters have proved themselves reliable, tough, and efficient.

Drawing on long, satisfactory experience with Mack fire trucks, Schenectady, New York, recently added another Mack pumper to its fire protection line.

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PERFORMANCE COUNTS!

If your community needs additional fire-fighting equipment or replacements, think of Mack. Remember, Mack Fire Apparatus is backed by the greatest engineering resources in the indvstry.

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ARMY E NAVY

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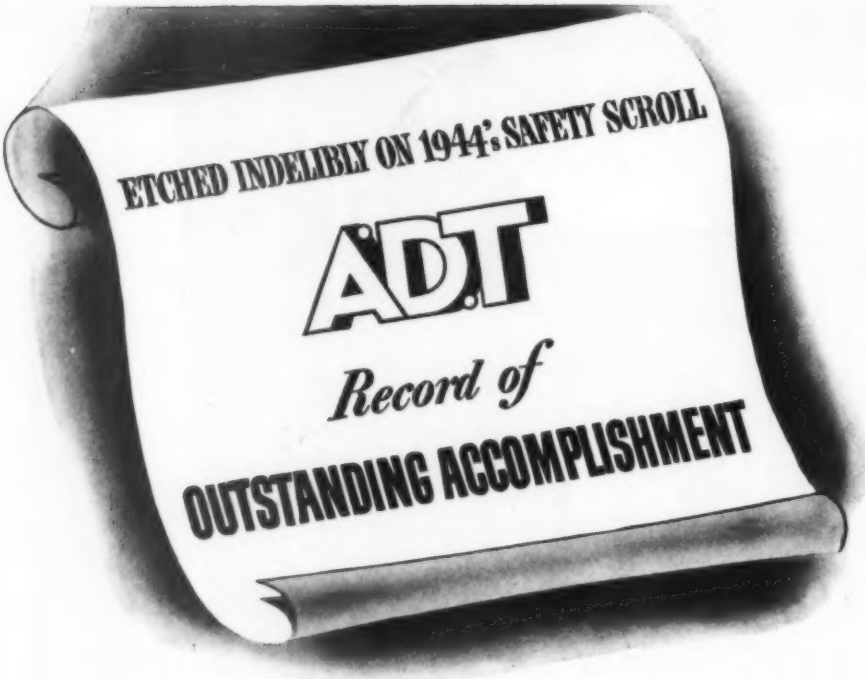

BURGLAR AND HOLDUP ALARM SERVICES

Burglars captured as a result of A.D.T. Alarms . . . **328**
Percentage of losses in attacks on A.D.T. protection to insurable values protected . . . . . **6/1,000ths of 1%**

During the past ten years, subscribers to A.D.T. Burglar Alarm Services have enjoyed 99 99/100ths% IMMUNITY FROM BURGLARY LOSSES.

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WATCHMAN SUPERVISORY AND MANUAL FIRE ALARM SERVICE

Investigations of failures of watchman to signal on schedule **216,738**
Total number of signals supervised was 323,938,615; hence, the patrol efficiency was **99 93/100ths%**
Manual Fire Alarms received **1,772**
Percentage of fire losses to insurable values . **3/100ths of 1%**

During the past ten years, subscribers to A.D.T. Watchman Supervisory and Manual Fire Alarm Service have enjoyed 99 97/100ths% IMMUNITY FROM FIRE AND WATER LOSSES.

•

SPRINKLER SUPERVISORY AND WATERFLOW ALARM SERVICE

Supervisory alarms, indicating impairment of sprinkler systems **131,423**
Waterflow alarms, indicating fires or serious leaks . . **2,598**
Percentage of fire and water losses to insurable values **4/100ths of 1%**

During the past ten years, subscribers to A.D.T. Sprinkler Supervisory and Waterflow Alarm Service have enjoyed better than 99 98/100ths% IMMUNITY FROM FIRE AND WATER LOSSES.

UNDER wartime conditions, factors such as heavy increases in concentrations of values, rapid expansion of industrial operations, use of unskilled labor, inferior construction and a host of other hazards offer a serious challenge to protective systems.

During 1944, A.D.T. met the situation by maintaining the same high standards of efficiency and effectiveness, in minimizing fire and burglary losses, that have characterized A.D.T. Services year after year.

The accompanying statistical analysis provides comforting assurances to A.D.T. subscribers and merits the thoughtful consideration of business executives, insurance underwriters and others concerned with property protection.

A.D.T. ELECTRIC PROTECTION SERVICES

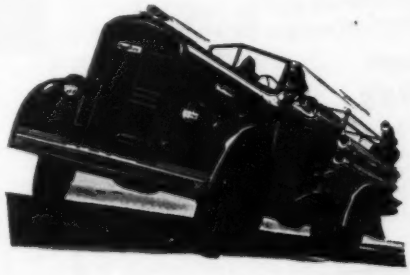
Controlled Companies of **AMERICAN DISTRICT TELEGRAPH CO.** *155 Sixth Avenue, New York, N.Y.*
CENTRAL STATIONS IN ALL PRINCIPAL CITIES OF THE UNITED STATES

A.D.T.

Electric Protection Services
AGAINST FIRE · BURGLARY · HOLDUP
A NATION-WIDE ORGANIZATION

ARE YOU READY FOR A BIG ONE?

Because most conflagrations are small at the start, speed in getting to the scene and into action ranks first in importance. Ward LaFrance pumpers are first in ability to do just that . . . But it's the *big* fire that costs big money, and when one breaks out, *stamina* is what counts . . . A recent fire in an eastern city cost $275,000, due in good part to the fact that three pumpers broke down. Ward LaFrance pumpers "get there fast" and *stay on the job* . . . WARD LA FRANCE has meant absolute dependability to fire fighters for twenty-five years. Today Ward LaFrance pumpers are the choice of our largest American cities, as well as small towns. Why not write our Sales Department today, outlining the needs of your community?



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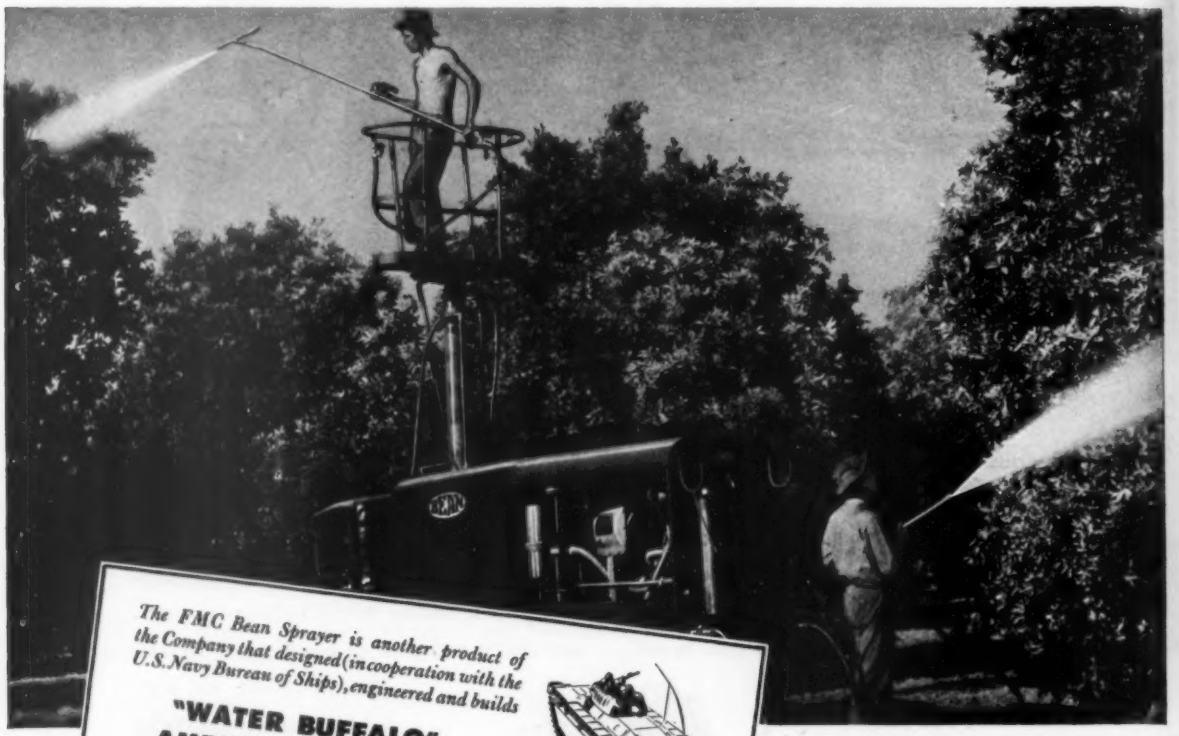
Protecting tomorrow's harvests from destruction

Here is an actual battle scene in the never-ending war against an enemy more merciless, insatiable and destructive than the Nazi or Jap! The enemy? *Insects and fungus diseases,* constantly attacking food crops all over the nation. Vital fighting equipment in helping to keep these pests under control are Bean Sprayers, embodying the famed Bean High Pressure Pump. Over 60 years' experience in building pest control equipment has been an important factor in establishing Food Machinery Corporation's enviable reputation for designing, engineering and manufacturing resourcefulness.



The FMC Bean Sprayer is another product of the Company that designed (in cooperation with the U.S. Navy Bureau of Ships), engineered and builds

"WATER BUFFALO" AMPHIBIOUS TANKS

used extensively by the Armed Forces.

Back of every FMC product is the extensive research, creative engineering and manufacturing skill of Food Machinery Corporation.

7 of Food Machinery Corporation's 14 major factories are making "Water Buffalos" or sub-assemblies.

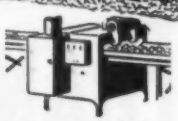
Other FMC Divisions and Typical Products

JOHN BEAN MFG. CO. DIV. AND BEAN-CUTLER DIV.... also make FMC Fog Fire Fighters. Lansing, Mich. and San Jose, California.

PEERLESS PUMP DIVISION. Turbine, Hi-Lift and Hydro-Foil Pumps. San Jose, Los Angeles and Fresno, California; Canton, Ohio.

RIVERSIDE DIVISION. Produce Packing Equipment and Protective Processes, Automatic Box Making Machines. Riverside, Cal.

FLORIDA DIVISION... Produce Packing Equipment ... Flavorseal Protection & other processes. Dunedin & Lakeland, Florida.



TEXAS DIVISION. Produce Packing Equipt., Canning Machinery, Flavorseal & other processes for fresh produce. Harlingen, Tex.

ANDERSON-BARNGROVER DIVISION. A complete line of machinery for canning and packing many types of foods. San Jose, Calif.

THE NIAGARA SPRAYER & CHEMICAL CO., INC. DIV. Insecticides. Middleport, N.Y.; Jacksonville, Florida; Burlington, Ont., Can.

SPRAGUE-SELLS DIVISION. A full line of equipment for nearly every packing operation on many types of foods. Hoopeston, Ill.

FOOD MACHINERY CORPORATION

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AKRON DROP FORGED ROCKER RING

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COUPLING

Adding to the genuine ROCKERLUG *the Features of Rocker Ring for Thread and Swivel Protection*

A new standard of service life for fire hose couplings has been set by this Akron Drop Forged Rocker Ring Coupling with these important features:

- PROTECTOR RINGS
- HIGBEE CUT NON-CROSS THREADS
- HIGBEE INDICATOR
- TAPERED HOSE BOWLS
- TAPERED STILL THREAD SWIVEL ATTACHMENT

Protective rings or bands around male and female parts to guard and protect both male and female threads. Swivel is supported and suspended by these protective bands, preventing damage to the swiveling action. Uncoupled, both male and swivel ends are held clear of ground so that dragging or obstructions can do no harm to threads.

Drop forged material — more uniform composition for greater strength and longer service.

AKRON BRASS MFG. COMPANY, INC.
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WPB Limitation Order L39, amended December 21, 1944, permits use of this drop forged alloy. Fire hose couplings may be purchased on an MRO priority rating under procedure covered by governing regulations.

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FIRE FIGHTING EQUIPMENT

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This war-born, blended, multi-protein foaming agent for highspeed extinction of gasoline, oil and other serious fires—*has military experience only!* Used extensively by the U. S. Navy for preparedness—and for quickly extinguishing fires on shipboard and at shore bases, MEARLFOAM-5 is the veteran of many successful engagements.

This effective multi-protein foaming agent works with maximum efficiency in any climate or atmospheric condition. It is a good mixer—with any type of water: sea, fresh . . . hard, soft. Whatever the temperature of air and water, the highspeed extinction qualities of its foam are constant and invariable.

MEARLFOAM-5 yields the live, lasting foam with the tough, elastic water-retaining film. When split-seconds count—you can rely on MEARLFOAM-5 to put fire out fast—keep fire out, *permanently!*

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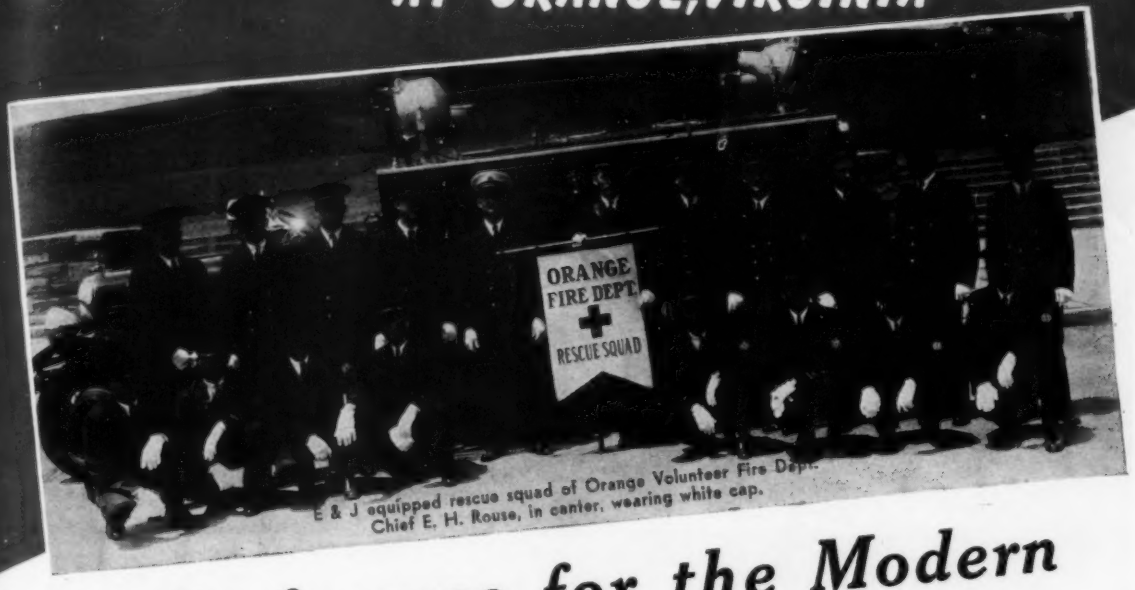

E & J equipped rescue squad of Orange Volunteer Fire Dept. Chief E. H. Rouse, in center, wearing white cap.

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Back in 1931, the Orange Volunteer Fire Department purchased an E & J Resuscitator. In February, 1945, after fourteen years of perfect service, Chief E. H. Rouse converted this old unit into the latest model E & J Resuscitator, Inhalator and Aspirator.

The truck, pictured above, which carries the E & J, was one of the first rescue trucks in the state of Virginia.

This is a typical example of the hundreds of small communities in the United States that have installed the E & J and are thereby able to offer a life saving service to their citizens on a par with large cities.

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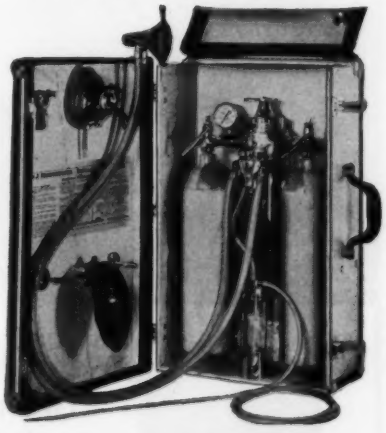

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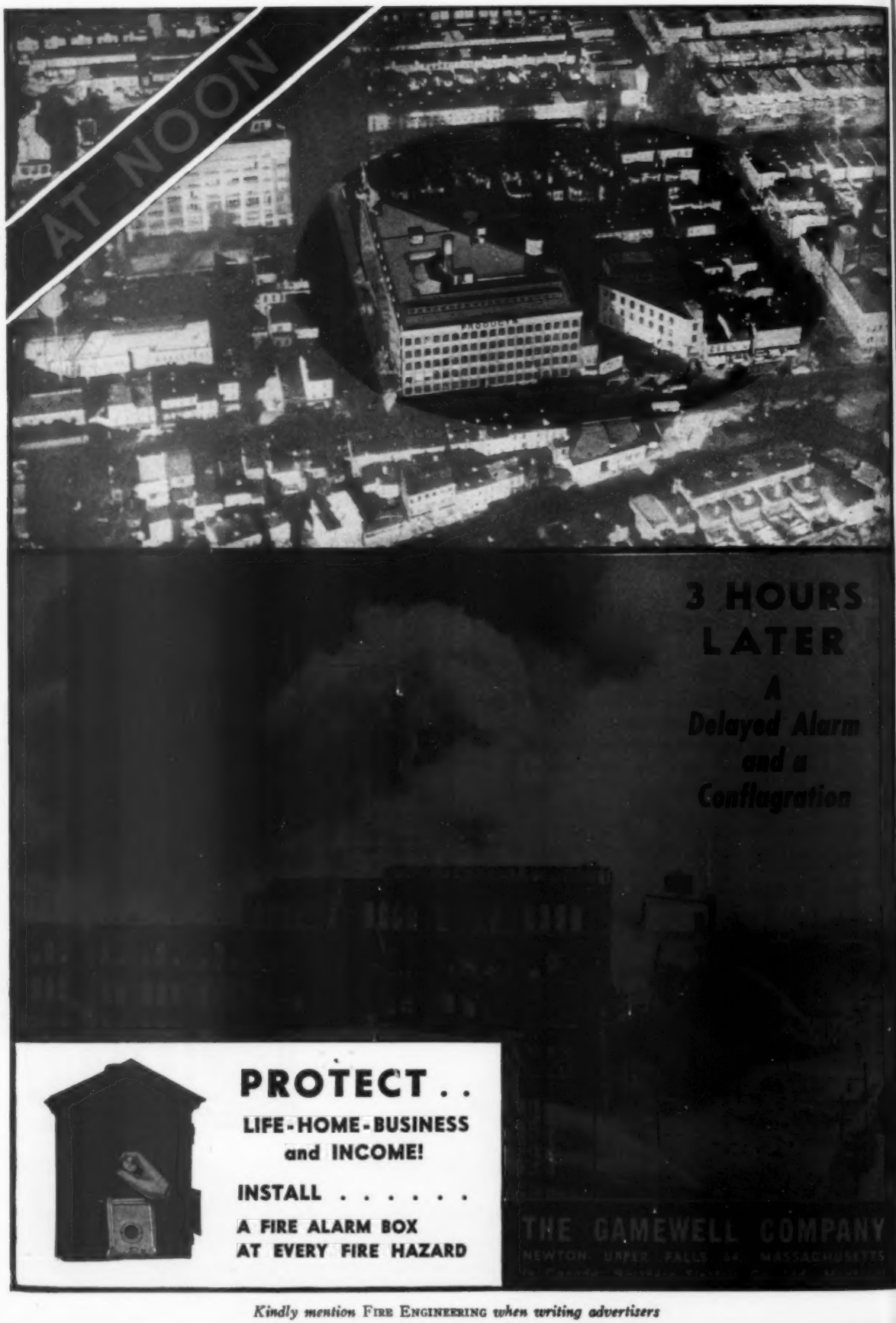
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A Delayed Alarm and a Conflagration
PROTECT . .
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FIRE ENGINEERING

MAY, 1945 VOL. 98. NO. 5

With the Editor

Credit—Where It Is Due! From time to time some member of Congress rises to pay compliment to some group or organization in labor or industry for an outstanding wartime job. The Congressional Record recently praised the performances of the railroads, for example, and its pages abound with plaudits of Senatorial sounder-offers, extolling this and that entity.

For the most part this is as it should be. We have no quarrel with either the nice things said or those about whom they are voiced. But withal, we can't help thinking how seldom anyone rises to eulogize the Fire Service of our Nation. In fact, if you were to search the Congressional Record for years back, we doubt if you could find a single creditable reference to this vital service which has helped so successfully to prosecute the war by protecting the Nation's production against fire.

Many leaders in the armed forces know what the Fire Service has done—in spite of handicaps of lowered manpower and obsolete equipment. But evidently members of Congress don't know it or, if they do, their appreciation has never been broadcast.

We wonder if Congress knows what sacrifices the Fire Service has made for the war effort, the lives lost on the "fire front" as well as those sacrificed by the members of the Service in the armed forces.

We wonder if Congress knows—when it considers the great record of industry and labor in winning the battle of logistics, just how unselfishly and faithfully the Fire Service has watched over both to see that there was no interruption in the manufacture, storage and transportation of war essentials from fire, explosion and sabotage.

We wonder if Congress knows that there has never been a strike within the Fire Service of the Nation, either for needed higher wages to meet increased war living costs, or for better working conditions.

We wonder if Congress realizes the ever-mounting battle being waged by the Fire Service, laboring under the handicap of insufficient personnel and out-moded apparatus and equipment, to prevent and suppress fires—a battle that with apologies to the WPB, OPA and other government agencies has had but the scantest cooperation from official Washington.

We wonder if Congress has the faintest idea of what might have happened—what might even now happen to the war effort—if the Fire Service were to relax its vigilance and its efforts in even the slightest degree.

Perhaps Congress doesn't know and appreciate these things because nobody has told it. Maybe if Congress knew, it might be more inclined to give credit where credit is due—and with the credit, release some of its restrictions, cut some of the red tape that is hamstringing the Fire Service.

Maybe the Fire Service itself has failed to give the Congress, and the citizens and taxpayers who elect Congressmen the true facts of the case?

Maybe—just maybe—the Service has not done a very good "selling job," measured for example by that of organized labor and industry.

Maybe it is time the Fire Service undertook such a task!

Fred Shepperd

Blank Walls Check Firemen, Warehouse is Gutted

By JERRY DALY

WHAT portends to be the heaviest single fire loss this year in New York City (thus far free from disastrous war-time fires) was the blaze in a five-story U. S. Bonded and Free warehouse at the northeast corner of West and Watts on Monday morning April 9. The loss inevitably will reach around $1,500,000. The warehouse is in the high pressure zone of lower Manhattan, one block south of Canal, the main artery between West Side vehicular highway and the Holland Tunnel. Traffic was tangled for hours. Very important trucking of war supplies bound for transports and freighters nearby, was seriously delayed.

Nine Firemen and a Civilian Were Injured When a Four-Alarm Fire Swept Through This Six-Story Warehouse in New York and Menaced Piers, Docks, Freight Terminals and Other Warehouses Along the Hudson River Waterfront.

The fire was one of the smokiest and most stubborn the fire fighters have had to encounter in the Metropolis for a long time. Unpierced brick walls on three sides of the warehouse hampered the latitude of the firemen who were restricted to 18 windows per floor on the West street front, and to such openings in the roof as could be made before all hands were ordered out of the building.

For about a month prior to the fire, work of reinforcing the floors had been in progress. To what extent, if any, that work may have disrupted or exposed the electrical wiring, is one of the unanswered questions.

The warehouse was opened at eight o'clock. Six of the twelve workmen went to the fourth floor for the sorting and grading of a $600,000 cargo of (uninsured) Russian bristles consigned to the R.F.C. The electric lights could not be turned on. The office was notified. A fuse box was examined and tested. Whatever was done, if anything, the lights went on with blinding brilliance. Then they dimmed; brightened again and finally went out. The warehouse company's electrician was summoned from another warehouse nearby. He arrived in ten or fifteen minutes and while he was endeavoring to locate the source of trouble, someone yelled "Fire on the third floor!!!" Workmen seized six water pails, but through the blinding smoke they could not see the fire. There was no delay in sending in the alarm.

Included in the bonded and the free storage were a large quantity of impounded Japanese toys and novelties; sheep-lined coats for U. S. Army personnel; miscellaneous clothing consigned to the U. S. Army Quartermaster; many cases of Scotch whisky and bottled beer; barrels of rum and drums of dyes; impounded Japanese carbon paper; chests of tea; bags of coffee, spices, cans of paint, tuna fish, etc. U. S. Government uninsured loss will reach around $1,000,000, if not more.

Arched doorways in four brick party-walls on each floor gave the flames a lot of leeway. Much of the tightly packed stock was tiered to the ceiling and was so close to the front windows that it proved a barrier to the H. P. streams that otherwise could have swept through the third, fourth and fifth floors.

The building is 125′ on West street by 110′ on Watts street; mill construction; exact age unrecorded—even the owners did not know. They said the

(*Continued on page* 330)

Blank Walls Interfere with Fire Fighting Operations at Warehouse Fire in New York.

Black Light—A New Scientific Aid to Firemen

By CHIEF WILLIAM H. DAVIS
Pittsburgh, Pa., Fire Department

A FIRE alarm box is pulled; companies roll out and upon arrival find it to be another false alarm.

A citizen approaches the Chief and informs him that he saw a man pull the box and run into a house down the street. He even goes further in his statement and tells the offender's name. The Chief asks his informant if he will testify in court if an arrest is made. The usual answer to this question is, "No, I don't want to become involved or get in wrong with the offender or his family."

So does the Chief have a case? The answer today is "Yes."

The Chief thanks his informant and proceeds to the offender's home, gets his man and brings him to headquarters. He calls in several firemen from the station as witnesses and the interrogation of the suspect begins.

CHIEF: Did you pull the alarm box?

SUSPECT: No.

A little black box sits on the Chief's desk from which he extracts a spotlight with a very deep purple lens. He plugs into a light socket and waits a moment for the light to give off its maximum glow, for it is a mercury vapor lamp. All other lights in the room are extinguished and the purple glow from the spotlight is hardly discernible. The suspect is told to hold out his hands.

The Chief directs the beam from his lamp on the man's hands and a weird thing takes place. The suspect's thumb and two fingers on his right hand glow with a brilliant green color, all of which throws the suspect into a state of panic. The ray is then directed onto the man's clothing. On each button of his overcoat and around the button holes, the same queer green light glows. He had transferred the substance from his fingers to his clothing while removing his coat. After this exhibition of modern science, the suspect is again asked, "Did you pull the box?" The answer is "Yes."

Beam from Mercury Vapor Lamp Discloses Telltale Evidence on Fingers (Right).

Applying Fluorescent Powder to Handle of Fire Alarm (Below).

The confession was obtained by using a modern, up to date silent witness, a fluorescent powder that had been placed on the key and pull down hook of the fire alarm box some weeks before.

The fluorescent powder, known to the trade and criminal investigators as S-195 (Invisible Green Powder) is a product of the Continental Lithographing Company, Cleveland, Ohio. It is very finely ground and the most minute particle glows brilliantly under ultra violet rays which are passed through a deep purple filter.

This system of detection is so "Sure Fire" that a guilty party can be picked out of several hundred—a school for example—simply by having them pass the lamp one by one with hands outstretched.

Battalion Chief Robert G. Capes of the Pittsburgh Bureau of Fire, originator of the above method of apprehending sounders of false alarms, has been using it for the past several months. His unique method has gained wide publicity for the department which

(*Continued on page 332*)

Coast Guard Conducts Tests on Engine Room Fires—Part IV

Carbon Dioxide and Fog Employed in Instructive Series of Demonstrations; Some Observations

THIS is the concluding installment of the series of articles describing fire extinguishing tests made on the Liberty Ship, "Caspar de Portola" at Fort McHenry, Md., by the Coast Guard under the direction of Commander Lloyd Layman.

The first three installments, which appeared in the February, March and April issues, reviewed the scope and purpose of the tests, and outlined the procedure followed; they also included reports of the first eight tests. This article resumes the review of individual tests and the conclusions drawn.

Test No. 9

I. TIME—
December 11, 1944.

II. PURPOSES—
1. The primary purpose of this test fire was to investigate further the techniques and methods developed during previous test fires for extinguishing a major fire involving fuel oil under the floor plates by the control of air flows and the use of low velocity water fog applied from the upper level at one point only.

2. Secondary purposes were to investigate further:

a. To determine if a uniform cooling of the oil is effected during the process of extinguishment.

b. To determine if sufficient volume of fuel oil vapors are present within the space, upon completion of extinguishment, to constitute a hazard.

III. CONDITIONS BEFORE TEST—

1. The machinery space remained the same as reported after Test Fire No. 8 conducted 7 December, 1944 with the following exceptions:

a. One thousand gallons of Navy Special fuel oil were added to the approximately 4,500 gallons of fuel oil remaining after Test Fire No. 8. A sample of the oil remaining after Test Fire No. 8 was analyzed and found to be similar to bunker "A" in all respects except in viscosity which was between bunker "A" and bunker "B." Due to the starboard list, approximately ten thousand gallons of water were allowed to remain in the bilge in order to obtain maximum oil coverage without raising the oil above the floor plates. This brought the oil level to within two inches of the floor plates on the starboard side. Oil coverage was obtained with the exception of one hundred and fifty square feet at the forward port corner. This volume of oil provided an oil depth of approximately five inches.

2. Two 2½ inch hose lines were laid from a 500 gallon skid pump unit, located on the pier, to the main deck to supply the 1½ inch working lines. One 1½ inch line equipped with 1½ inch straight applicator and 2½ inch low velocity fog head was laid to the port side of the skylight house on the boat deck. Additional 1½ inch lines equipped with all-purpose nozzles were located at various strategic points on the boat and top decks for use in cooling the exterior of the ventilators, if necessary, before covering. From another 500 gallon skid pump unit, located on the pier, a 2½ inch line was laid to a twin twenty-five gallon mechanical foam pressure proportioner also located on the pier. From the proportioner a 2½ inch line was laid to the main deck to supply two 1½ inch hose lines equipped with mechanical foam nozzles.

3. An electronic pyrometer was used to determine the degree of heat at levels from three feet above the floor plates up to one foot down from the top of the stack and at all overheads within the space. Reference is made under Test Record to the thermocouple terminals at the locations given below:

No. 1—Projecting downward one foot into machinery space from second deck port side passage, sixteen feet aft of forward machinery space bulkhead and fourteen feet inboard from port shell plating.

No. 5—Projecting downward one foot into machinery space from carbon dioxide compartment, port side second deck, four feet forward of storeroom and workshop bulkhead and six feet inboard from port shell plating.

No. 7—Projecting aft one foot into machinery space at the mid-point of the second deck athwartships passage at the deck level.

No. 14—Six inches below ridge and five feet aft of forward bulkhead of the skylight house.

No. 15—Three feet above floor plates and ten feet forward of shaft tunnel entrance.

No. 16—Projecting ten feet into the machinery space from the mid-point of the forward bulkhead, three feet above floor plates.

IV. TEST RECORD—

1. At 1430, the oil in the machinery space was ignited at nine different locations after priming with gasoline. Smoke banked down quickly from the overhead forcing priming parties to withdraw from the machinery space by way of the shaft tunnel immediately following ignition of the oil.

2. From the topside, it was noted that almost immediately after ignition smoke started to come from the stack casing, the open skylights, and the midship port main ventilator. During the following ten minutes the smoke coming from

Test Crew Waiting Until Fire Has Gained Headway Before Starting Extinguishing Operations.

these openings was very black and in large volume.

3. At 1441, the smoke coming from the stack casing changed to very dark gray with some light brown smoke present. At this time the average temperature within the machinery space was 349°F. The highest temperature was 528°F. at thermocouple No. 7 and the lowest was 50°F. at thermocouple No. 14.

4. At 1500, thirty minutes after start of test, covering of air intake openings was started. The smoke coming from the stack casing was dark gray with some light brown smoke present. The average temperature within the space was 659°F. The highest temperature was 1283°F. at thermocouple No. 7 and the lowest was 140°F. at thermocouple No. 14. Note: A hatch tarpaulin was used to cover the entire skylight housing including the two small ventilators. Specially designed oval canvas covers were used to cover the six main ventilators. An asbestos cloth curtain, with small brass hooks along the upper edge, was used to cover the grilled opening between the Engineer's Storeroom and the second deck port side passage.

5. At 1508, thirty-eight minutes after start of test, the covering of all air intake openings was completed. During the covering operation, the emitting smoke constantly diminished in volume. At this time the average temperature was 610°F. The highest temperature was 920°F. at thermocouple No. 7 and the lowest was 97°F. at thermocouple No. 14.

6. At 1510, forty minutes after start of test, a 1½-inch hose line equipped with a 1½-inch straight applicator and a 2½-inch low velocity fog head was inserted under the canvas hatch tarpaulin, used to cover the skylight house, into an open skylight on the port side. The hose was lowered approximately 15 feet and low velocity fog applied at this point. At this time the average temperature within the space was 572°F. The highest was 865°F. at thermocouple No. 7 and the lowest was 125°F. at thermocouple No. 14.

7. At 1515, five minutes after start of application of water fog, the average temperature within the space was 457°F. The highest temperature was 665°F. at thermocouple No. 7 and the lowest was 185°F. at thermocouple No. 15. A small amount of light gray and light brown smoke, with steam apparent, was emitting from the stack casing.

8. At 1520, ten minutes after start of application of water fog, the average temperature within the space was 387°F. The highest temperature was 555°F. at thermocouple No. 7 and the lowest was 150°F. at thermocouple No. 15. The smoke, with steam apparent, coming from the stack casing changed to brown in color.

9. At 1525, fifteen minutes after start of application of water fog, the average temperature within the space was 363°F. The highest was 500°F. at thermocouple No. 7 and the lowest was 138°F. at thermocouple No. 15.

10 At 1526, the aft starboard main ventilator cover was blown off by internal pressure. This cover was replaced immediately.

11. At 1530, twenty minutes after start of application of water fog, the average temperature was 349°F. The highest was 478°F. at thermocouple No. 7 and the lowest was 130°F. at thermocouple No. 15. The smoke, with steam apparent, coming from the stack casing changed to light gray and light brown in color.

Liberty Ship, "Gaspar de Portola", Which Served as Laboratory for Engine Room Fire Extinguishing Tests.

12. At 1535, twenty-five minutes after start of application of water fog, the average temperature within the space was 351°F. The highest temperature was 468°F. at thermocouple No. 7 and the lowest was 130°F. at thermocouple No. 15. The insulated plywood panel on the aft bulkhead of the officers' wardroom on the main deck ignited. One 1½-inch all-purpose nozzle was used to extinguish the burning plywood after it had been removed from the bulkhead.

13. At 1538, it was discovered there was considerable disturbance of the tarpaulin used to cover the skylight house. This was partly due to internal pressure and partly to the wind. It was necessary to readjust the tarpaulin and secure it with a line placed around the base of the skylight house. It was also noticed that from time to time some smoke was given out at the grilled opening between the Engineer's Storeroom and the second deck port side passage.

14. At 1540, thirty minutes after start of application of water fog, the average temperature within the space was 338°F. The highest temperature was 435°F. at the thermocouple No. 7 and the lowest was 120°F. at thermocouple No. 15.

15. At 1545, it was noticed that the hose line into the skylight house had slipped from the top down to the lower edge of the open skylight. It is probable that this occurred during the readjusting of the tarpaulin at 1538 allowing a considerable quantity of the water fog to come in contact with the port bulkhead thereby decreasing its effectiveness. It was necessary to raise the tarpaulin to replace the hose line after which the tarpaulin was again secured with a line.

16. At 1550, forty minutes after start of application of water fog, the average temperature within the space was 325°F. The highest was 435°F. at thermocouple No. 7 and the lowest was 117°F. at thermocouple No. 15. At this time a small amount of light gray and light brown smoke, with steam apparent, was coming from the stack casing. Also at this time it was discovered there was a definite down draft in the stack casing on the windward side.

17. At 1600, fifty minutes after start of application of water fog, the average temperature within the space was 360°F. The highest was 425°F. at thermocouple No. 7 and the lowest was 112°F. at thermocouple No. 15.

18. At 1610, one hour after start of application of water fog, the average temperature within the space was 308°F. The highest was 412°F. at thermocouple No. 7 and the lowest was 117°F. at thermocouple No. 15. At this time, a small amount of light gray and light brown smoke, with steam apparent, was coming from the stack casing.

19. At 1620, one hour and ten minutes after start of application of water fog, and one hour and fifty minutes after start of test, the average temperature within the space was 278°F. The highest temperature was 358°F. at thermocouple No. 7 and the lowest was 108°F. at thermocouple No. 15. At this time two fire-fighting parties, each consisting of two men, entered the machinery space from the shaft tunnel. Each fire-fighting party was provided with a 1½-inch hose line equipped with an all-purpose nozzle. High velocity water fog was used to extinguish burning oil around machinery foundations and to cool the floor plates preparatory to the application of mechanical foam.

20. At 1633, one hour and twenty-three minutes after start of application of water fog, the average temperature within the space was 289°F. The highest temperature was 375°F. at thermocouple No. 16 and the lowest was 108°F. at thermocouple No. 15. At this time the application of water fog at the skylight house was stopped and one minute later the hatch tarpaulin was removed from the starboard side of the skylight house in an attempt to clear the machinery space of smoke.

21. At 1637, the fire-fighting parties discontinued the use of the all-purpose nozzles and applied mechanical foam from two 1½-inch mechanical foam nozzles

Discharge of Heavy Smoke Shortly After Oil in Engine Room Had Been Ignited.

22. At 1645, two hours and fifteen minutes after start of test, the average temperature within the space was 341°F. The highest temperature was 452°F. at thermocouple No. 1 and the lowest was 93°F. at thermocouple No. 15. At this time low velocity water fog was applied at the starboard passage door on the main deck using one 1½-inch hose line equipped with a ten-foot applicator.

23. At 1650, two hours and twenty minutes after start of test, the average temperature within the space was 280°F. The highest temperature was 395°F. at thermocouple No. 5 and the lowest was 80°F. at thermocouple No. 15.

24. At 1700, two and one-half hours after start of test, the average temperature within the space was 202°F. The highest temperature was 345°F. at thermocouple No. 5 and the lowest was 70°F. at thermocouple No. 15. At this time the application of water fog at the starboard passage door on the main deck was stopped.

25. At 1704, the covers were removed from all air-intake openings.

26. At 1715, two hours and forty-five minutes after start of test, all burning fuel oil had been extinguished and the application of mechanical foam was stopped. The only burning within the space was a small amount of class "A" material which was extinguished with a 1½-inch all-purpose nozzle. At this time the average temperature within the space was 142°F. The highest temperature was 250°F. at thermocouple No. 5 and the lowest was 65°F. at thermocouple No. 15.

27. The fire-fighting parties operated without respiratory protection.

28. Heat indicating lacquer showed the following temperatures were reached:

a. On the aft bulkhead of No. 3 hold, a temperature of 400°F. was reached at all locations and a temperature of 1000°F. was reached at some locations. None of the spots painted on the forward surface (15 inches from bulkhead) of a vertical "I" beam stiffener, located approximately 8 feet from the midpoint, reached 175°F.; however, the forward surface of a similar stiffener at the mid-point reached at least 212°F. as indicated by steam conversion of water.

b. In the No. 3 'tween deck section, spots painted on the deck one inch from the aft bulkhead and on the bulkhead one inch above the deck reached 400°F. on the port side, 500°F. at the mid-point and did not reach 175°F. on the starboard side. Spots painted on the bulkhead five feet above the deck did not reach 175°F.

c. In the No. 4 'tween deck section, none of the spots painted on the deck one inch from the forward bulkhead reached 175°F. All of the spots painted on the bulkhead one inch and also five feet above the deck reached 175°F.

29. During the fire it was noted that a two-foot-square section of the No. 3 hold aft bulkhead became bright red at a level about two feet above the machinery space floor plates and near the mid-point of the bulkhead.

30. The volume of water used was estimated at approximately 12,108 gallons.

31. One hundred and ninety gallons of mechanical foam liquid were used.

32. Nineteen hundred and ninety-one temperature readings were recorded during the test.

V. Weather Conditions During Test—

1. During the test it was raining, with a northeast wind of twelve miles per hour. The relative humidity was 91% and the temperature 34°F. The barometer was 29.83 inches.

VI. Conditions After Test—

1. The machinery space was in practically the same condition as reported after Test Fire No. 8 conducted 7 December, 1944, with the following changes:

a. All surfaces carbon coated except where washed clean by water fog, at forward end of engine, and on forward bulkhead near port side.

b. Additional warping of some floor plates with extreme warping of floor plates near forward bulkhead on port side.

c. Vertical "I" beams, at forward end of engine, buckled.

d. Warping of forward bulkhead on port side.

VII. Tentative Conclusions—

1. Under certain conditions a section of the opening between the stack and the stack casing will become an air intake.

Remarks: It is believed that this will occur only when sufficient rain is being carried against a section of the stack casing to prevent that section from becoming heated. The opening between the stack and the unheated section of the stack casing will become an air intake and the remainder of this opening will become an outlet for heated smoke and vapors. It is believed that the velocity of the wind does not contribute to these conditions except to the extent of carrying the rain against the stack casing. It is doubted that any covering could be improvised to overcome these conditions at the time of a fire. It is questionable that these conditions could exist with the boilers in operation. Observations will be made of ships, with their boilers in operation under similar weather conditions, in an effort to arrive at a definite conclusion.

2. When complete control of air flow into the machinery space cannot be obtained, the most practical method of extinguishment is as follows:

First: Cool the machinery space by the application of low velocity water fog at the upper level.

Second: Enter the machinery space by way of the shaft tunnel door.

Third: Use high velocity water fog to extinguish open surface burning and to cool the floor plates.

Fourth: Immediate application of mechanical foam to cover the oil surface.

Test No. 10

I. Time—

December 14, 1944.

II. Purposes—

1. The primary purpose of this test fire was to investigate further the techniques and methods developed during previous test fires for extinguishing a major fire involving fuel oil under the floor plates by the control of air flows and the use of low velocity water fog applied from the upper level at one point only.

2. Secondary purposes were as follows:

a. To determine if a uniform cooling of the oil is effected during the process of extinguishment.

b. To determine if sufficient volume of fuel oil vapors are present within the space, upon completion of extinguishment, to constitute a hazard.

III. Conditions Before Test—

1. The machinery space remained the same as reported after Test Fire No. 9, conducted 11 December, 1944, with the following exceptions:

a. One thousand gallons of Navy Special fuel oil were added to the 4,500 gallons of fuel oil remaining after Test Fire No. 9. Due to the starboard list, approximately ten thousand gallons of water were allowed to remain in the bilge in order to obtain maximum oil coverage without raising the oil above the floor plates. This brought the oil level to within two inches of the floor plates on the starboard side. Oil coverage was obtained with the exception of one hundred and fifty square feet at the forward port corner. This volume of oil provided an oil depth of approximately five and one-quarter inches.

IV. Test Record—

1. At 1410, the oil in the machinery space was ignited at nine different locations after priming with gasoline. Smoke banked down quickly from the overhead forcing the priming parties to withdraw from the machinery space by way of the shaft tunnel immediately following ignition of the oil.

2. At 1444, thirty-four minutes after start of test, covering of air intake openings was started.

3. At 1452, forty-two minutes after start of test, the covering of all air intake openings was completed.

4. At 1457, forty-seven minutes after start of test, a 1½-inch hose line

(*Continued on page 320*)

Findlay Fire Tests

Episodes from the outstanding series of oil tank fire control tests held at Findlay, Ohio, April 30-May 5, sponsored by the Standard Oil Company (Ohio) and others.

A detailed report of these tests will be published in a later issue of FIRE ENGINEERING.

1. Observers Major R. M. Blakely, Office of Provost Marshal; A. B. Pettit and A. W. Gilbert of Rubber Reserve Corp., all of Washington; R. W. Greenbergh, Pure Oil Company, Toledo, Ohio, and W. K. McCoy, Dir. Facilities Service Div., PAW. 2. One of several test fires quickly extinguished by automatic sprinkler and foam systems. 3. Observers H. B. Peterson, Morris A. Spamer and Dr. Richard L. Tuve, Naval Research Lab., Washington. 4. Capt E. D. Ballard, Office Chief of Engineers; Comm. Harold Burke, Damage Control Section, Bureau of Ships, U. S. Navy; James J. Duggan, Carbide & Carbon Corp., So. Charlestown, W. Va., and other observers. 5. Safety Directors Frank Harrison, Pure Oil Co., Toledo; Edward Klewer, Oil Workers Int. Union (C.I.O.) and R. T. Henderson, Standard Oil Co. (Ohio). 6. J. J. Power, Jr., V. P., Automatic Sprinkler Corp. of America, checks oil with gauger T. Arras, National Refining Co. 7. Comm. Lloyd Layman, U. S. Coast Guard Training Station and C. P. Holmes, PAW Security Div., Chicago. 8. Captain N. P. Nugent and Major R. O. Turner, Wright Field, inspect tank interior after fire. 9. Fire out. Just before cutting off Pyrene foam system. Showing pickup and delivery lines leading to aspirator. One of National Foam's aspirators also shown. 10. Navy's nine man camera crew directed by Lieut. (j.g.) F. Terzo and Ensign Oscar Boetticker, Jr., climb to shoot tank interior. Foam's aspirators also shown; 10. Navy's

Photos Courtesy Standard Oil Company (Ohio)

CONTROL OF FLAMMABLE TEXTILES RECEIVING NATIONAL ATTENTION

Congressional Committee Meets with Manufacturers and Fire Service Representatives to Consider Legislation

ON April 20 a meeting was held at Washington, D. C., by representatives of the National Dry Goods Association, U. S. Bureau of Standards, manufacturers of fabrics and yarns, International Association of Fire Chiefs and members of Congress to discuss proposed House bill 2496 for controlling the manufacture and sale of highly inflammable clothing materials.

Among those who attended the meeting were: Representative Leroy Johnson of California, the Congressman who introduced the bill; Representative Persy Priest of Tennessee and member of the Interstate Foreign Commerce Committee of the House of Representatives to which Committee the bill has been referred for hearings; Charles Dorn, Chairman of the Technical Committee of NRDGA; C. H. Baker, U. S. Testing Company of Hoboken, N. J.; S. H. Ingberg, Bureau of Standards Textile Division, U. S. Department of Commerce; Samuel J. Pope, President of the International Association of Fire Chiefs; Frederick Bonnet, American Viscose Corporation, Marcus Hook, Pa.; Truman Handy, Vice-President of the Celanese Corporation, New York City; Robert Burns, Assistant to Mr. Handy; Charles Simon, Industrial Byproducts & Research Corporation of Philadelphia.

At the opening of the meeting, Morris R. Clark briefly stated that this was a problem with which NRDGA was greatly concerned and that the association, through its Technical Committee, has been devoting a great deal of time, thought, and study to the problem over an extended period of time and that the association was greatly concerned over the safety of fabrics and the protection of the public. It was also stated that the sole interest in appearing before members of Congress by members of the association was to help Congress frame a law that would adequately protect the buying public and would set up such standards for safety as to make it workable.

Flameproofing of Fabrics Expensive

Mr. Dorn reviewed the efforts made by the NRDGA, through its Technical Committee, to meet and solve this problem. He described in some detail the problems faced and the efforts which were being made to solve them. He was questioned with regard to flameproofing of materials and described the faults of present methods of flameproofing. The only effective method of flameproofing involves some six to eight separate processes, adds a great deal of weight to the fabric and is very expensive; in fact, the process probably costs more than the fabric upon which it is used. Other present flameproofing processes, Mr. Dorn said, are unsatisfactory in that they will not stand washing with soap and water and, in many cases, will not stand dry cleaning and exposing to weather. He concluded by stating that the Committee was making progress but that it would probably be a matter of a month or six weeks before their work could be brought to a point where they could come before Congress with a set of proposed standards for a workable bill.

Dr. Bonnet described the various types of rayons, namely, the acetate type, the bemberg type and the viscose type. He described the respective inflammability of each of these classifications and also brought out the fact that certain cotton fabrics were more inflammable than certain types of rayon. He further stated that it was not the yarn itself which made an article inflammable but rather the use to which such yarn was put. In other words, a rayon yarn woven into a fine smooth fabric would not be hazardously inflammable, whereas such a yarn if woven into another type of fabric such as the imitation fur on the "Gene Autry" chaps (on cowboy suits in which three youngsters were burned to death in Washington recently) would be highly inflammable. He stated that it was impossible for the manufacturer selling yarn to dictate the type of fabric into which it would be woven.

Chief Samuel Pope of Boston, stated that he, as Fire Chief of the city of Boston and as President of the International Association of Fire Chiefs, was vitally interested in efforts to arrive at a practical solution of flameproofing of materials. The question of the flameproofing of denims and ducks was discussed with special regard to tents used by the armed services and their inflammability. It was brought out that these utility fabrics presented an entirely different problem from rayons and cottons used for garments. It is possible to successfully flameproof the former but, so far, certain types of the latter present a hazard.

Charles Simon made a brief statement largely reiterating what was said by the previous three witnesses in describing the function of his organization in the testing of various fabrics for retailers in order to determine their fire hazard. Samples were then passed around for examination by those present.

Hazardous Features Discussed

Dr. Bonnet showed some vignon manufactured by the Viscose Corporation and stated that it was the type of fabric that was largely non-inflammable. Buttons of various types made of the cellulose nitrate was circulated and their respective hazardous features discussed.

Captain Warfield produced a pair of "Gene Autry" chaps for examination and subsequent demonstration. He stated that, in his opinion, the problems went further than wearing apparel, and extending to drapes, women's millinery, shoes which contain cellulose nitrate as a substitute for leather, plastic models used for stores to display hosiery, etc.

Mr. Handy and Mr. Burns spoke briefly on the subject of the respective inflammability of various types of cotton in comparison with certain types of rayon. They pointed out that the use of the word "synthetic" was somewhat misleading in that certain types of synthetic rayons were far less inflammable than certain types of cottons. The question of inflammability of blankets made partly of wool and partly of rayon was discussed and it seemed to be the consensus of opinion that these did not constitute a real hazard.

The meeting then adjourned to Congressman Johnson's outer office where Mr. Baker of the U. S. Testing Company conducted a series of rather spectacular tests on various types of fabrics as well as on buttons made oc cellulose nitrate. Certain types of rayon failed to flame while certain types of cotton did. On the other hand, certain types of cottons only charred while

Observing Tests on Inflammability of Fabrics at Washington Meeting. Chief S. J. Pope, President of I.A.F.C., at left.

other types of rayons flared up almost immediately. Samples of the "Gene Autry" trimmings were tested and burst into complete flame so quickly that time could not be checked by a stop watch.

Both types of the cellulose nitrate buttons burst into flame comparatively rapidly. The carved rose-petaled type taking approximately one second and the smooth round-head taking about four seconds to ignite.

Congressman Priest, who is a member of Interstate and Foreign Commerce Committee and appointed by Chairman Lea to investigate this subject for the Committee, said that he would suggest to the Chairman that hearings be called immediately in order, primarily to prevent Congressman Rankin or others from introducing improper bills. The NRDGA committee has been assigned the task of presenting standards to the committee that can be incorporated in the bill. Mr. Dorn advised that it would take upwards of six weeks for the Committee to prepare such standards.

As the discussed progressed, it was quite evident that both Johnson and Priest were interested only in presenting a bill that would protect not only the consumer but the manufacturers and retailers and that they would not rush, in writing, any legislation that would not fairly protect the best interests of all parties. The bill would cover a rather broad field, including not only fabrics, but other articles used by humans in the daily course of their lives.

Now "Sir" Aylmer Firebrace

Sir Aylmer Firebrace, who was knighted in the New Year's Honors List, is believed to be the first British fire chief to receive such honors since the days of the almost legendary Sir Eyre Massey Shaw.

This will come as good news to the host of his American friends who remember "Commander" Firebrace upon the occasion of his visit to this country in 1937.

In honor of the knighthood bestowed upon the Chief of Fire Staff of Britain's National Fire Service, the Headquarters Staff of the N.F.S. recently gave a luncheon at the Dorchester Hotel, London, at which Sir Aylmer and Lady Firebrace were guests of honor. The guests included the Home Secretary, the Rt. Hon. Herbert Morrison, M.P.; the Rt. Hon. Ellen Wilkinson, M.P., Parliamentary Secretary to the Ministry of Home Security; Sir William Brown, Permanent Secretary Ministry of Home Security; Sir Arthur Dixon, Principal Assistant Under Secretary of State Fire Service Department; Mr. H. A. Strutt, C.V.O.; Mr. T. Hutson; Mr. George Harcourt, R.A., and Mrs. Harcourt.

The Deputy Chief of Staff, Mr. A. Sullivan, opened the proceedings by asking the Home Secretary to accept on behalf of the National Fire Service a portrait of the Chief of Staff, painted by Mr. George Harcourt. In reply, the Home Secretary asked the Commandant of the N.F.S. College, Brigadier C. C. Hewitt, to accept the portrait for display at the College for so long as such a college existed. He spoke of his long association with the Chief of Staff; he had known Sir Aylmer first as a Principal Officer in the London Fire Brigade, later as its Chief Officer—an appointment made by a Committee of which he was a member—then as Regional Fire Officer for the No. 5 (London) Region; and finally, as Chief of Fire Staff to the National Fire Service. He felt that no living man had done more for the Fire Service of Britain, and believed the honor which they celebrated was a fitting reward for a lifetime's single-minded devotion to that Service.

Miss Ellen Wilkinson spoke of the work of the women in the National Fire Service and praised the Chief of Staff for the courage he had shown in admitting women to responsible positions, such as that of mobilizing officers.

In his reply, the Chief of Staff likened himself to the coach of a fine team of men and women (whose Captain was the Home Secretary and whose Vice-Captain was the Parliamentary Secretary), who had been called upon to receive the prize which every member of the team had helped to win.

Concluding, Sir Aylmer thanked the Staff for the loyalty, friendliness and understanding with which they had always supported him, and said how much was due to Mr. Sullivan for the way both Fire Staff and Inspectorate had pulled the same end of the rope for more than four years.

V. J. WILMOTH,
Headquarters Fire Staff, N.F.S.

The British Home Secretary, the Rt. Hon. Herbert Morrison, M.P., Accepting on Behalf of the National Fire Service a Portrait of Commander Sir Aylmer Firebrace, C.B.E., R.N.(Ret.) Which Has Been Painted by George Harcourt, R.A., President of the Royal Society of Portrait Painters.

Captain Tom Magner Retires

Captain Thomas F. Magner has retired after serving 26 years with the Bridgeport, Conn., Fire Department, to resume newspaper work.

Captain Thomas F. Magner

"Tom Magner," as he has been known for twenty-five years to hosts of readers of this publication and, we are happy to say, as he will continue to sign his contributions, as New England correspondent, joined the Bridgeport Fire Department on Dec. 1, 1918, and was one of the first four captains to be appointed under civil service. He entered the department while employed as sports editor of the Bridgeport **Telegram**, to which paper he has now returned.

Following his appointment he was appointed to Lieutenant on Feb. 1, 1920, and sent to the Fire Prevention Bureau, since disbanded. He became aide to Asst. Chief Alexander S. Mellor, now retired. In 1936 he was shifted to Engine Company 3 and later placed in charge of Engine 6. Serving in nearly all of Bridgeport's fire stations, Capt. Magner was in command of Engine 9 at the time of his retirement. He was the only officer on the list for advancement in the event the post of assistant chief became vacant.

Tom's many friends in the fire service will wish him success in his new job.

S O S for Old Pumper

Who knows where an old-fashioned hand-operated pumper can be secured?

An American manufacturer of fire-fighting equipment seeks such a pump for museum purposes.

If you have one, or know where one might be procured a line to the Editor of FIRE ENGINEERING will be appreciated.

Edward G. Weed Dies

Edward G. Weed, internationally known in the fire extinguisher field, died in Toronto, Ont., on April 23, after a heart attack. He was 69 years old.

He was president of the Pyrene Manufacturing Company of Canada, Ltd., evecutive vice president of the Pyrene Manufacturing Company at Newark, N. J., and a director in both companies. His death occurred suddenly while he was attending a directors' meeting.

Edward G. Weed

In addition to being a director of both companies, Mr. Weed was on the boards of the C-O-Two Fire Equipment Company of Newark, also of its Canadian affiliate of the same name, and the Chemical Concentrates Corporation.

Before joining Pyrene, he had been a sales executive of the National Carbon Company of this country and in Canada. Long a leader in trade association activities in the fire extinguisher and automobile tire chain trades, Mr. Weed was known for his devotion to the cause of safety in industry, transportation and the home. Only recently, as a member of the President's Advisory Committee of the International Association of Fire Chiefs, he cooperated in the preparation of the membership program now being carried out by that Association.

He was born in Hickory Grove, Pa., May 6, 1875, and since 1937 had resided in Maplewood, N. J. He belonged to numerous fire service organizations as well as to the Newark Athletic Club, Downtown Club of Newark, the National Republican and Advertising Clubs of Newark. His wife, Eva Barlow Weed died in 1937. He leaves a son and daughter, H. B. Weed and Mrs. Gordon C. Brown, both of Toronto; a sister, Mrs. Joseph T. Brown of Waterbury, Ct., and three grandchildren, Harold C. Weed, Edward G. Brown and Mrs. Allen Hagyard, all of Toronto.

Chief George Sinclair Honored

Chief George Sinclair of Toronto, Ont., was honored on April 26 when 500 persons gathered at the King Edward Hotel in that city to celebrate his completion of fifty years service with the fire department. Chief Sinclair was presented with a gold wrist watch by the Toronto fire fighters, a silver tea service by the Board of Control of the City of Toronto and a launch, complete with an outboard motor, by the commercial interests of the city.

In addition to very complete representations from the Board of Control, the City Council, Board of Trade, and civic employees, the banquet was attended by the fire chiefs of the twelve suburban municipalities around Toronto, and a number of members of the Dominion Association of Fire Chiefs.

Fire Officials on Foreign Mission

Two veteran fire officials, Chief Fire Marshal Anthony J. Mullaney and Chief Frank C. McAuliffe of the Chicago Fire Department and the Chicago Fire Insurance Patrol, respectively, have been selected by the War Department for a special mission in Europe.

Although the nature of their assignment is undisclosed, it is reported they will work under the United States strategic bombing survey, which group has been charged with evaluating and computing damage done to buildings and territory by all types of American-made bombs, including the fire damage done by bombing.

Chief Mullaney, who has been given leave of absence by Mayor Kelly, has been a member of the Chicago Fire Department since May 14, 1914. Chief McAuliffe has been head of the fire insurance patrol since 1924, previous to which time he held posts in the fire department ranging from pipeman to battalion chief. He is Second Vice-president of the International Association of Fire Chiefs. His employers, the Chicago Board of Insurance Underwriters have given him leave of absence to take the government position.

In Chief Mullaney's absence, his post will be filled by Michael Cody, now Second Deputy Chief Fire Marshal. Chief McAuliffe's successor has not been announced.

It is reported that these members of the fire service will join another Chicagoan, also well known to the service, Clarence Goldsmith, Assistant Chief Engineer of the National Board of Fire Underwriters, who was sent abroad following many months' attendance at the special bombing tests conducted by the armed forces at Dugdale Proving Grounds, Toole, Utah.

March Fire Losses

Estimated fire losses in the United States during March were $40,876,000, an increase of $1,792,000 or 5 per cent over losses of $39,084,000 during March, 1944, it was announced by W. E. Mallalieu, general manager of the National Board of Fire Underwriters, which bases its estimates upon incurred losses reported to the Board by member companies, plus an allowance for unreported and uninsured losses.

The total losses for the first three months of 1945 were $127,198,000. The March losses were 1 per cent less than losses of $41,457,000 reported in February of this year. Losses in the twelve months period ending March 31, 1945, amounted to $434,800,000 as compared with $396,049,000 for the similar period ending with March, 1944.

The accompanying chart graphically illustrates the loss trends.

Service Insignia on Uniforms

Recent revisions in the R & R of the New York Fire Department to permit the wearing of service ribbons and decorations on regulation uniforms may be of interest to other departments concerned with this question.

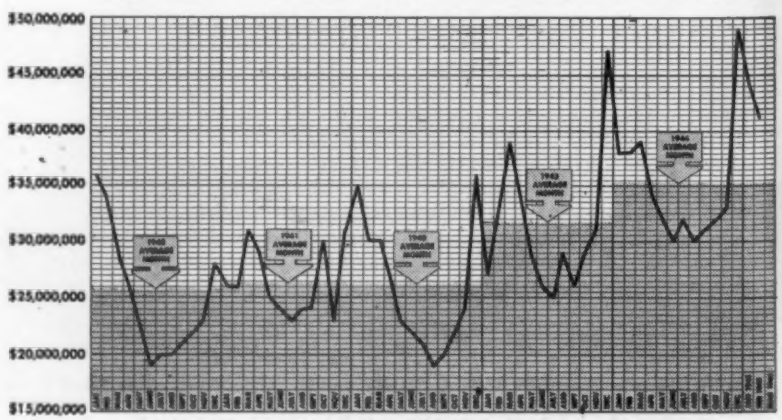
"Members, while in uniform shall not carry umbrellas, nor wear buttons, badges or decorations, other than those permitted by these rules or in Official Orders.

"Members entitled to wear medals or citations due to service in the Armed Forces of the United States may wear such medals or citations, while in uniform, when permission is granted in Official Orders.

"Members entitled to wear service ribbons due to service in the Armed Forces of the United States may wear such ribbons while in uniform. When service ribbons are worn, they shall be affixed one-half inch above the proper location of the coat badge, shall be arranged horizontally in one row only, which shall not exceed three inches in length. No other decorations shall be suspended from service ribbons. In lieu of service ribbons, the Official Discharge Button may be worn on the left coat lapel. When an Official Discharge Button is worn, it shall be affixed one and one-half inches from the apex of the triangle formed by the left lapel and midway between the edge seams.

"No medals, citations, war service ribbons or official discharge buttons shall be worn upon the uniform overcoat."

FIRE LOSS IN THE UNITED STATES BY MONTHS



REPORTED ON AN INCURRED BASIS TO THE NATIONAL BOARD OF FIRE UNDERWRITERS, INCLUDING AN ALLOWANCE FOR UNREPORTED AND UNINSURED LOSSES.

Small Town "Conflagration"

It has been said that few large fires are the result of any single factor. Usu-lly the fire that "gets away" is caused by a combination of errors and misfortunes—a lot of little things that went wrong—as one chief expresses it.

Such appears to have been the case in Mauston, Wis., where a $75,000 fire completely destroyed five store buildings, heavily damaged a sixth and threatened the entire town despite the valiant efforts put forth by four fire departments.

The Mauston fire involved a chain store (in which the fire originated), a barber shop, bakery, cafe and dress shop, all two-story structures, most of them frame, in the center of the town.

The fire was discovered at 8:30 a. m. and when the first firemen arrived, the chain store was well involved. It was apparent that aid would be needed and Chief John R. Smith sent out calls to neighboring departments of Wisconsin Dells, Lindinia and New Lisbon, all of which responded with apparatus and men. In addition, Lyndon Station sent volunteers.

According to one report, the local municipal water system was undergoing repairs at the time of the fire and the available supply in the mains was being furnished by a single 500-gallon-per-minute pump. There was a shortage of water at the hydrants and apparatus was stationed at the river a short distance to the rear of the properties involved. As rapidly as working streams were developed they were concentrated on the flanks of the fire where fire walls finally aided in confining the flames which were fought for five hours by the combined forces.

The fact that there was no wind at the time of the blaze was credited with an "assist" by the fire fighters, but this was offset by the combustible construction, the lack of water and heavy stream fire appliances and the difficulty in mustering the necessary reserve fire defenses including large pumpers.

In view of all these conditions, the work of the volunteers in making the stop where they did was considered very creditable.

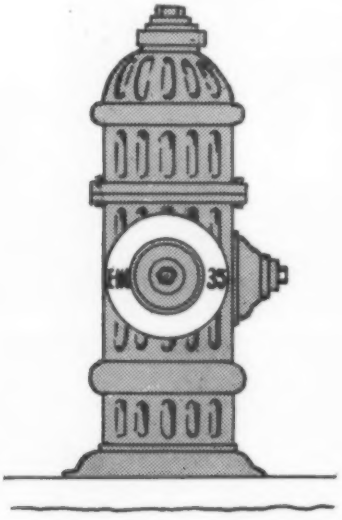
The accompanying photographs submitted with the account of the fire, by Chief Rod A. Porter, Portage, Wis., graphically depict the progress of the blaze and the battle put up by the firemen.

1. Fire is shown at the start with streams being played on Gamble Store and between All State Cafe and the Mauston Dress Club. 2. Two streams are being played on the Gamble Store where the fire originated. The front of the All State Cafe is showing signs of collapsing. 3. The flames, which originally were confined to the Gamble Store and All State Cafe have spread in both directions and are involving the Saemisch Bakery and Denizen Barber Shop on the left and the All State Cafe and Mauston Dress Club on the right. 4. The height of the blaze is shown here. The front wall of the All-State Cafe has fallen to the pavement and the other structures are all well involved. 5. Five stores are burning with most of the fire visible in the Gamble Store. The front of the All State Cafe lies on the pavement. A shortage of water is quite apparent in this photo. 6. The aftermath of fire. The "weight" machine shown in the All State Cafe in Photo 3 gives mute evidence of the destruction which ensued from the blaze.

SHORT CUTS AND GADGETS

THE McCARTHY DISC

The New York Fire Department uses a "gadget" developed by John J. McCarthy, now Assistant Chief of Department in Command, some years ago when he was a Deputy Chief. It is known as the "McCarthy Disc" and its prime purpose is to enable firemen to quickly, definitely identify unserviceable hydrants.



The discs (see accompanying sketch) are made of 2-gauge steel cut in cylindrical form 7½ inches in diameter. Discs for use on 3-inch outlets on high pressure hydrants have a 3¼-inch hole in the center, and discs for 2½-inch outlets have a 3¼-inch hole in the center to fit over the outlet threads on the hydrant. The discs are painted white and each is stamped with the company number, and with individual numbers running consecutively from No. 1 up, for the purpose of keeping proper records. Each company in the department is furnished with a supply of discs. When a fireman who has been assigned to inspect hydrants in his company district discovers a hydrant that is out of order or unserviceable at any time for any cause whatsoever, he must remove the hydrant cap and place a disc over the threads of the outlet and replace the hydrant cap. He then must make a note of the location, the type of hydrant, and the nature of the disorder or unserviceability and report the same to his commanding officer upon return to quarters.

When these marked "warning signals" are discovered by companies responding to a fire they will be passed up and no time lost in connecting up to an unserviceable hydrant. They can proceed to the nearest hydrant that is in service. The department of Water Supply, Gas and Electricity, and private water companies, are expected to cooperate with the fire department in the use of these markers by placing the hydrants in service without delay and returning the discs to the fire companies designated on the device.

Detailed instructions were issued to all concerned covering the purposes and use of the disc.

Time is a big element in fire fighting and the first few minutes often decide whether the fire can be confined to its point of origin with a minimum of loss, or whether it will get sufficient headway to cause a conflagration. This "short cut" increases the efficiency of the department by saving time. It saves needless telephoning, burdening telephone lines with messages from company to company and company to chief officers, listing locations of unserviceable hydrants. It is inexpensive to make and maintain. Being universal in its application it enables companies from distant stations to respond to any locality and get to work as quickly as local companies by avoiding unserviceable hydrants. It has special merit in the winter time by signalizing frozen or defective hydrants. And its use can be extended by placing one or more discs on standpipes or sprinkler connections that may be unserviceable.

* * *

WHEN IS "RIGHT-SIDE-UP"?

Here's a simple idea but one that ought to have been thought of long ago, and used universally. But let contributor E. D. Lichliter of Fire Station No. 3, Miami, Fla., tell is:

"I looked forward every month when our FIRE ENGINEERING is due. The first thing I look for is the 'Short Cuts' page. There is a lot of little things that can make so many minutes go further.

"Captain Davis, the drill instructor of the Miami Fire Department, has had all of our pike poles notched. They are notched just enough so that you can feel it (the notch) with your finger. The idea of the notch is to tell which way you hook part (of the pike pole) is pointing—up or down.

"In dark rooms, or smoke filled rooms it comes in mighty handy. This small idea may save some fireman's hands from getting cut with plaster by having the hook pointed the wrong way.

"The notch is located about where your hands are when you are using the pike pole."

Contributor Lichliter, giving credit where it is due, says, in closing: "This is not my idea but I am just passing it on to you hoping that it might do some good." Thanks, Brother Lichliter.

How about it, Mr. Reader—you may not have a "Short Cut" or a "Gadget" of your own to talk about—but there's no reason why you can't contribute something somebody else has devised—and reap the reward!

STILL MORE ABOUT "HOLDER-OPENERS"

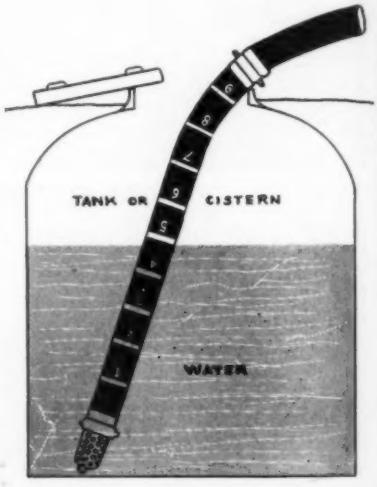
Many of our contributors have written us relative to gadgets for holding open doors and windows. Here is another from D. L. of Miami, Fla., who writes as follows:

"In the November issue of FIRE ENGINEERING under the heading "Short Cuts and Gadgets" there is an item about using a small wedge for holding open doors. The same peg may also be used to hold up windows in which the rope has been broken. It also serves as a good sprinkler stop. We have all been isued two of these pegs to carry as part of our equipment in our bunker coats. This migh be of great help to some other department." D. L.

* * *

DEVICE FOR DRAFTING

Here's an idea for a simple "short cut" which comes from C. W. Tucker, Chief Engineer, Huntertown Volunteer Fire Company, Huntertown, Indiana, which should have particular interest for rural and small town fire departments, where nearly all water is secured by drafting.



The idea is to enable the pump operator to gauge more accurately the remaining water supplies in cisterns, tanks, wells, or whatever storage receptacle is used.

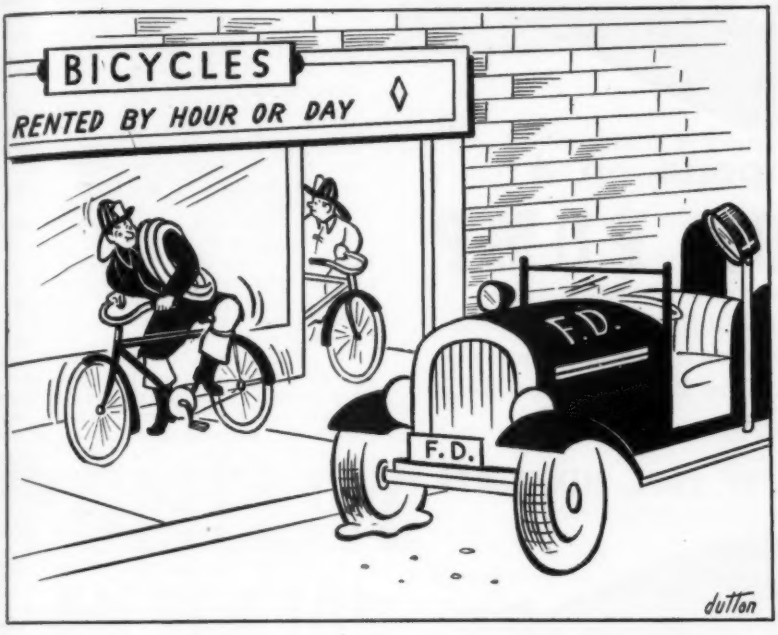
As the illustration shows, "depth lines" are painted on the first section of suction hose, much similar to the "Plimsoll Mark" on a ship's bow to indicate her load. These lines are two inches in width, are placed at one-foot intervals, measurement started from the base of the strainer, and are numbered from the same point.

One problem has been to get a paint that will withstand abrasion and immersion, so that it is not necessary to renew it frequently. The paint used is white sidewall tire paint but Chief Tucker has not found this entirely satisfactory. Care should be used not to employ an oil paint that may damage the rubber suction.

* * *

Contributors to "Short Cuts and Gadgets" are paid $1.00 *for acceptable items and* $5.00 *when accompanied by usable illustrations.*

FALSE ALARMS



"Without a cent in my pockets, I went into a cafe and got a straight shot of whiskey."

"And what did you have for a chaser?"

"The bartender."

"If we turn you loose, soldier, will you leave liquor and women alone?"

"I sure will, Doc!"

"Take him back to Q Ward, sergeant. the poor man's still nuts."

Woo, Woo

Many a girl has gone out with a soldier and found that he was A. W. O. L. F.

We never used to be able to find Grandma's glasses, but nowadays she leaves them right where she empties them.

Step on It

He: "I suppose I'm only a little pebble on the beach of your life?"

She: "Yes, but you might stand a chance if you were a little boulder!"

Old Maid: "I bet that man was embarrassed when you caught him looking over the transom."

Second O. M.: "Gosh, yes, I thought he'd never get over it."

Servants

Guest: "Been long in the service of the family, Jenkins?"

Butler: "Indeed, sir, I am now serving the third degeneration."

—Boston Transcript.

"I just can't marry him, Mother," bemoaned the young girl in the throes of love. "Last night he told me that he was an atheist and didn't believe in hell."

"You just go right ahead and marry him," said her mother, "and between us we'll convince him he's wrong."

Town Crier in Germany, "Eight o'clock and all is hell."

A bachelor is a man who has no children—to speak of.

An eminent scientist announces that man does his best work at fifty, and we'll bet he's the same one who announced ten years ago that he does it at forty.

"That lawyer of mine has a nerve."

"Why so?"

"Listen to this item in his bill: 'For waking up in the night and thinking over your case, $5.00.'"

"Daddy and I won't be home tonight, Johnny, do you want to sleep alone or with nursie?"

Johnny: "What would you do, Daddy?"

Breathes there a man with soul so dead
Who has never turned around and said,
H-M-M-M—Not bad!

"Are you the man who saved my son from drowning when he fell through the ice?"

"Yes."

"Where's his mittens?"

Jimmie: "What is middle age, Dad?"

Father: "Middle age, my son, is that period in a man's life when he'd rather not have a good time than have to get over it."

"Just Have a Seat, These Two Gentlemen Are Ahead of You!"

When You're up against a STUBBORN FIRE...

You can depend on a
WATEROUS PUMP

The design of every part in a WATEROUS is based upon outstanding performance and long life. For example, all bearings are run in oil and are protected from water and dirt. Used in leading makes of fire apparatus. Literature upon request.

WATEROUS COMPANY • ST. PAUL, MINNESOTA
Also Manufacturers of the WATEROUS Fire Hydrant

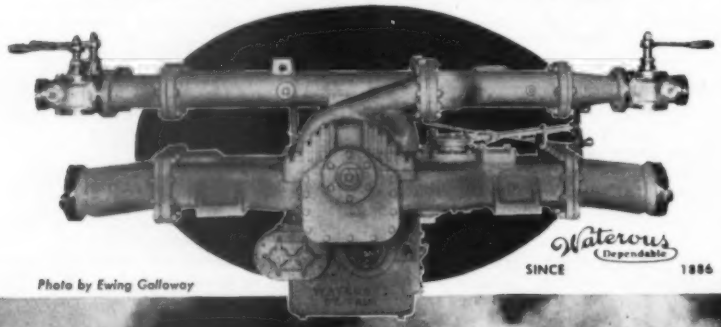


Photo by Ewing Galloway

WATEROUS
FIRE PUMPS

Coast Guard Conducts Tests on Engine Room Fires

(*Continued from page* 312)

equipped with a 1½-inch straight applicator and a 2½-inch low velocity fog head was inserted under the canvas hatch tarpaulin, used to cover the skylight house, into an open skylight on the port side. The hose was lowered approximately 15 feet and low velocity fog applied at this point. At this time the average temperature within the space was 554°F. The highest temperature was 760°F. at thermocouple No. 2, and the lowest was 267°F. at thermocouple No. 14.

5. At 1532, thirty-five minutes after start of application of water fog, the average temperature was 230°F. The highest was 265°F. at thermocouple No. 6, and the lowest was 110°F. at thermocouple No. 15. Application of water fog was stopped.

6. At 1533, one hour and twenty-two minutes after start of test, an inspection party entered the machinery space by way of the shaft tunnel and was able to proceed in an upright position to any point at the floor plate level without physical discomfort. It was found the only burning was in a small amount of class "A" material. This was extinguished with a small amount of water from one 1½-inch all-purpose nozzle.

7. At 1533, an Explosimeter was used to determine the presence of oil vapors within the space. Tests for vapors were made at various locations within the space at a level of one inch above the surface of the oil. There was no indication of vapors being present at any point.

8. The volume of water used during the test was estimated at approximately 3,900 gallons.

V. Weather Conditions During Test—

1. The weather was cloudy with a southwest wind of twelve miles per hour. The relative humidity was 47% and the temperature 32°F. The barometer was 30.1 inches.

VI. Tentative Conclusions—

1. A major fire involving fuel oil under the floor plates can be extinguished by the control of air flows and the use of low velocity water fog applied from the upper level at one point only.

2. Temperature readings of the oil indicate a uniform cooling of the oil is effected during the process of extinguishment.

3. Upon completion of extinguishment there is no indication of the presence of fuel oil vapors within the space.

Test No. 11

I. Time—

December 21, 1944.

II. Purposes—

1. The primary purpose of this test fire was to investigate further the techniques and methods developed during previous test fires for extinguishing a major fire involving fuel oil under the floor plates by the control of air flows and the use of low velocity water fog applied from the upper level at one point only.

2. Secondary purposes were as follows:

a. To determine if a uniform cooling

PUT A

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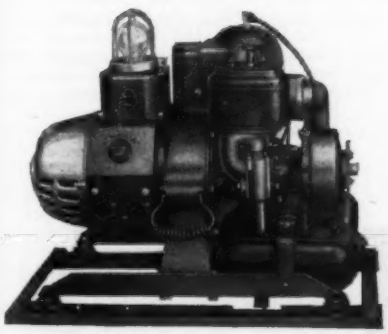
AND GET IT DONE

MUCH FASTER

With a small, compact Gasoline-Engine-Driven Homelite Generator, you can operate an amplifying system for directing quick and effective orders to your men while they are fighting fires. *



Capable of producing more horsepower per pound than other portable generators, a Homelite gives you longer and better service with less trouble and maintenance. Self-lubricating, air-cooled, and equipped with over-size ball bearings, the Homelite built-in two-cycle gasoline engine stands up dependably under all types of tough working conditions.

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You are best equipped to meet gas and smoke conditions encountered by your men when you have the famous M.S.A. All-Service Mask to rely upon! Easily put on and quickly adjusted, comfortable to wear, and efficient in protection against smoke and all gases, including carbon monoxide, the Model "S" All-Service Gas Mask features the *All-Vision* Facepiece (pictured in illustration with Speaking Diaphragm) for maximum vision; automatic timer; lightweight harness, and other design advantages—detailed in Bulletin EA-8, sent promptly on request.

MINE SAFETY APPLIANCES COMPANY
BRADDOCK, THOMAS AND MEADE STREETS
PITTSBURGH 8, PA.

of the oil is effected during the process of extinguishment.

b. To determine if sufficient volume of fuel oil vapors are present within the space, upon completion of extinguishment, to constitute a hazard.

III. CONDITIONS BEFORE TEST—

1. The machinery space remained the same as reported after Test Fire No. 10 conducted 14 December, 1944, with the following exceptions:

a. One thousand gallons of Navy Special fuel oil were added to the approximately 5,000 gallons of fuel oil remaining after Test Fire No. 10. Due to the starboard list, approximately ten thousand gallons of water were allowed to remain in the bilge in order to obtain maximum oil coverage without raising the oil above the floor plates. This brought the oil level to within two inches of the floor plates on the starboard side. Oil coverage was obtained with the exception of one hundred and fifty square feet at the forward port corner. This volume of oil provided an oil depth of approximately six inches.

IV. TEST RECORD—

1. At 1350, the oil in the machinery space was ignited at nine different locations after priming with gasoline. Smoke banked down quickly from the overhead forcing the priming parties to withdraw from the machinery space by way of the shaft tunnel immediately following ignition of the oil.

2. At 1420, thirty minutes after start of test, covering of air intake openings was started.

3. At 1427, thirty-seven minutes after start of test, the covering of all air intake openings was completed.

4. At 1433, forty-three minutes after start of test, a 1½-inch hose line equipped with a 1½-inch straight applicator and a 2½-inch low velocity fog head was inserted under the canvas hatch tarpaulin, used to cover the skylight house, into an open skylight on the port side. The hose was lowered approximately 15 feet and the low velocity fog applied at this point. At this time the average temperature within the space was 492°F. The highest temperature was 640°F. at thermocouple No. 4, and the lowest was 328°F. at thermocouple No. 14.

5. At 1550, the application of water fog at the skylight house was stopped.

6. At 1555, the application of water fog at the starboard passage door on the main deck was stopped and the covers ordered removed from all air intake openings. The average temperature within the space was 207°F. The highest was 380°F. at thermocouple No. 1 and the lowest was 80°F. at thermocouple No. 15.

7. At 1558, after the air intake covers were removed the fire-fighting party was able to advance to within a short distance of the burning oil which was located along the bulkhead and settling tank in the forward port corner. Not more than ten square feet were involved. This fire was quickly extinguished with mechanical foam delivered by a single 1½-inch mechanical foam nozzle after which high velocity water fog from one 1½-inch all-purpose nozzle was used to cool the pipes, manifolds, and floor plates in this area.

Would You have your Tonsils Removed by a Barber?

In the old days barbers doubled as surgeons, and the striped barber pole represented the blood that flowed in their surgical calling. Today the barber and the surgeon each is a specialist. *Each does his own job best.*

The same is true of fire extinguishers. No *one* extinguisher is right for *every* fire hazard. By manufacturing a complete line of extinguishers—including vaporizing liquid, carbon dioxide, soda acid, pump, and foam types—General has earned the title of "Fire Protectioneers" to industry.

Alaskan 2½-Gallon Pump Type Extinguisher is especially designed for use on fires in wood, paper, rubbish, textiles, and similar materials. Write for details.

FREE: Norman Rockwell's painting of the Great Chicago Fire and Mrs. O'Leary's cow illustrates General's new wall calendar. Write for your copy.

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The Coat:

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The Pants:

- Either rubber or canvas with detachable wool lining
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FIREMEN'S BOOTS AVAILABLE

Regular Firemen's Boots available ¾ length, reinforced instep, felt linings. New synthetic rubber, not reclaimed.

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MACKINAW, ILLINOIS

8. At 1602, high velocity water fog from one 1½-inch all-purpose nozzle was used to cool smoldering class "A" materials on the electrical equipment platform. At this time the average temperature within the space was 205°F. The highest temperature wos 363°F. at thermocouple No. 5, and the lowest was 65°F. at thermocouple No. 15.

9. At 1602, an Explosimeter was used to determine the presence of oil vapors within the space. Tests for vapors were made at various locations within the space at a level of one inch above the surface of the oil. There was no indication of vapors being present at any point.

V. Weather Conditions During Test—

1. During the test it was cloudy, with a north wind of six miles per hour. The relative humidity was 56% and the temperature 43°F. The barometer was 30.0 inches.

VI. Tentative Conclusions—

1. If air seepage occurs near the surface of the oil, burning will continue in the immediate area.

Remarks: Air was drawn in from the outside through a pipe located near the forward port corner. The volume of air was sufficient to support combustion over a limited area only. This condition was due to the gradual loosening of valves and flanges developed during previous test fires.

2. The temperature readings of the oil at locations other than the area where the burning continued indicate a uniform cooling of the oil is effected during the process of extinguishment.

3. Upon completion of extinguishment, there is no indication of the presence of fuel oil vapors within the space.

Summary

In the full scale experimental fires the oil was ignited at several locations after priming with gasoline. These fires were allowed to burn from thirty to forty minutes before any action was taken to control and extinguish. Under favorable weather conditions, it was possible to effect complete extinguishment of the burning oil by controlling the air flows and using low velocity water fog applied from the upper level at one point only. The rate of burning within the space decreased as the air intake openings were covered.

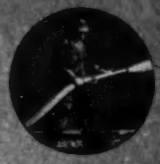
In this method of extinguishment, it is believed that convectional currents are developed within the space as the heated atmosphere at the upper level is cooled. These currents are utilized to carry water, which is in the form of mist, to the base of the fire. The extinguishment of the burning oil, cooling of the metal throughout the space, and the cooling of the oil are effected without direct application or equal distribution of the water fog. The success of this method depends upon complete control of air flows and the application of low velocity water fog at a point near the upper level and where the fog cone will not be destroyed by striking obstructions. It should be noted the nozzle was located about thirty feet above the burning oil, and the distance of the nozzle from the oil at the farward starboard corner was almost fifty-one feet. It should be recalled to mind that a ma-

NATIONAL FOAM

Blankets and Effectively Extinguishes

Oil, Tar, Gasoline and most Chemical Fires

These tar and chemical plant buildings were dependent on water for fire protection.



A gastight foam blanket is the surest and quickest way to deprive a fire of oxygen without which it cannot persist.

All foams are not equally effective fire extinguishers. The basic material that makes National Foam more effective is derived from Soy beans —that's why the Navy call it "Bean Soup." National Foam bubbles are tough, cohesive and adhesive. National Foam quickly produces a thick gastight blanket which smothers the fire, cools the surface and prevents flashbacks.

National Foam proved its efficiency the hard way, conquering first the toughest and most hazardous field — oil and gasoline fires. The success of Foam in this field was so outstanding and efficient that until recently almost the entire output and attention of the National Foam System was devoted to this phase of fire extinguishing.

The U. S. Navy have installed foam fire fighting equipment on all their ships, for protection against oil, gasoline and other hard-to-control fires. Until recently, the Navy have required the entire output of Aer-O-Foam. A limited amount can now be offered for civilian use.

National Foam System provides both portable and stationary units. No extensive or complicated installations are required to produce National Foam *in volume.*

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National Foam System has equipment especially designed for use of Fire Departments to meet all types of foam fire fighting requirements.

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jor part of the burning oil was locate under the steel floor plates.

Observations

There were a number of condition which were observed during and follow ing the full scale experimental fire which are of interest. They may b summarized as follows:

a. As the temperature increased with in the machinery space, there was considerable increase in the volume o air drawn into the space through the ai intake openings. The smoke decrease in volume and changed in color fro black to brown and gray.

b. After the fire had continued fro fifteen to twenty minutes, flames coul be observed from the door openings o the main deck. The height of the flame varied from ten to thirty feet. It ha been noted that the oil under the floo plates burns quite freely. In some o the full scale experimental fires very lit tle smoke came from the space afte twenty to thirty minutes of burning Almost complete combustion was at tained. It is believed that the wind di rection in relation to the position of th ventilators and the atmospheric condi tions were contributing factors to th completeness of combustion within th space.

c. Water in the form of small drop lets, commonly known as water fog, an mechanical foam were found to be th two most effective extinguishing agents The effectiveness of water fog was du to the high percentage and rapid rate o steam conversion. The water which wa converted into steam escaped from th space by way of the stack casing and its heat absorbing capacity was fully util ized. The water which remained i liquid form was of such limited volume that it would not have endangered th stability of a ship. Due to the freely flowing properties of mechanical foam it was possible to effect complete coverage of the oil beneath the floor plates.

d. It was found that the most practi cal method of supplying mechanical foam to the fire-fighting parties in the machinery space was to place one or two twin ten-gallon pressure proportioners on the main deck near the forward es cape hatch from the shaft tunnel. One hundred feet of 1½-inch hose equipped with a foam nozzle was taken from each of the proportioners. These lines were kept on the main deck and were fed down the forward escape hatch to the fire-fighting parties as they were needed.

Conclusions

From a study of the eleven experimental fires which were conducted within the machinery space of the "Gaspar de Portola," the following conclusions have been drawn:

1. If the carbon dioxide system is released promptly after an oil fire has started within the machinery space, the volume of carbon dioxide is sufficient to extinguish the fire and prevent reignition.

2. To control and extinguish a major oil fire within the machinery space, it is necessary to effect control of the air flows.

3. A major fire involving fuel oil under the floor plates can be extinguished by effecting complete control of air flows and the use of low velocity water fog applied from the upper level at one point only.

The QUESTION

It is a practice of some fire departments to spread life nets when ladder rescues are being made.

1. Do you believe this to be a desirable practice?
2. If so, why?
3. What, in your opinion, might be arguments against this procedure, if any?

The ANSWERS

FROM INDIANA
I am in favor of spreading life nets under ladders on which a rescue is being made if enough men are available who are well trained in life net operations.★

FROM COLORADO
It looks to me like an added safety precaution, eliminating the possibility of injury to the person being rescued.

FROM IOWA
I am in favor of this practice, as I don't believe we as firemen can take too many precautions when saving life is the issue.

FROM NEW YORK
I believe it would be good practice to use life nets when ladder rescues are to be made. It would be a double precaution against the possibility of the ladder slipping or the man making the rescue losing his grip or suffering a heart attack during the excitement, which often happens.

FROM ARKANSAS
Personally, I believe it is good practice to have your life net spread when ladder rescues are being made, especially if you have sufficient man-power.★

FROM LOUISIANA
I think it very wise to spread a life net under a ladder when rescue operations are being made. It is necessary to use every means available to save life. In a case where there is only one ladder used at the end of a hall, you can use a net at the opposite side and rescue from both sides at one time.

FROM IDAHO
I believe the practice of spreading life nets when ladder rescues are being made is a favorable one. I feel that any additional factor of safety that could be used in making emergency rescues is a desirable practice.

FROM MICHIGAN
I have seen them used in some cities and believe it is a good practice. In one instance, a fireman was rescuing a person from a burning building via a ladder, under which a life net had been spread to assist in the event of emergency. The fireman had to drop his victim into the net to avoid being burned from fire from a lower window.

FROM COLORADO
If a department has the necessary manpower to take care of both ladder rescues and spreading life nets, it would be a good thing to use *both* for safety.★

FROM TEXAS
I believe it is good practice to spread a life net when ladder rescues are being made. In this way, it may be possible to save a person should he fall while being rescued.

FROM IDAHO
It might be desirable to spread life nets under ladders when rescues are being made. It is always true, however, that an ounce of prevention is worth a pound of cure.

FROM IOWA
I am in favor of spreading a life net under a ladder in that it gives a feeling of assurance to those being rescued.

★ *Many departments call on auxiliary firemen or police in emergencies for extra man-power—releasing trained men for life net work.*

The LIFE NET!

From all parts of the country come endorsements of an idea we have continuously promoted. Save time—save life—carry our ATLAS LIFE NET — and use it — every chance you get. Specify ATLAS on your new apparatus! The world's finest and safest life net.

ATLAS SAFETY EQUIPMENT CO., Inc.

26 WARREN STREET★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ NEW YORK 7, N. Y.

4. The possibility of a smoke explosion occurring within the machinery space, upon admission of air, after all air intakes have been closed for a period of time, is believed to be eliminated by the presence of the opening between the smoke stack and the stack casing. This opening is located at the highest level within the space and provides a natural outlet for the continuous escape of a major part of the heated smoke.

5. The shaft tunnel and the opening in the bulkhead between the shaft tunnel and the machinery space provide a natural avenue of attack on the level of the fire. When the door to the machinery space is opened, there is a strong indraft of air which drives the flame and smoke from the thrust recess toward the interior of the machinery space.

When Air Control Is Incomplete

6. When complete control of air flows into the machinery space cannot be obtained, the most practical method of procedure is as follows:

First—Maintain as complete control of air flows as possible.

Second—Apply sufficient volume of water, in the form of low velocity fog, from the upper level of the space to reduce the temperature to an extent which will permit fire-fighting parties to operate the floor plate level.

Third—Attack by way of the shaft tunnel door and apply the necessary volume of mechanical foam to effect complete extinguishment.

7. A fire of the intensity and duration of Test Fires No. 5 and No. 9 would endanger cargo stowed in No. 3 hold.

8. It is believed that the fundamentals learned from this series of experiments are sufficiently broad to apply to major oil fires within engine or boiler rooms of all types of ships. It is necessary that water, of sufficient volume and pressure, be available independently of the pumps located within the involved space.

Editor's Comments

A review of this series of tests conducted under the supervision of Commander Lloyd Layman indicates that the fire-extinguishing techniques developed are particularly applicable to the conditions involved in engine-room fires.

Whether or not these techniques may have application to fires in buildings is open to speculation.

In the first place, the time element is not so critical when bringing an engine-room fire under control; for it is localized, and the metal bulkheads and decks assist materially in checking the extension of the blaze. This is particularly so when the circulation of water fog tends to cool these barriers to the spread of fire.

The cooling process, insofar as fire-extinguishing operations are concerned, is a gradual one, thus permitting a low rate of application of water. As long as the heat removed per unit of time is greater than the heat generated, ultimate extinction of fire is certain.

Control of air inflow has a material bearing on the success of water fog in extinguishing engine-room fires. This is emphasized by the failure to control fire when air inflow was not checked.

Convection currents of air also appear as a major factor in this method of fire control. They carry the finely divided

Chief POWHATAN

SENSIBLE LUG COUPLINGS

"SENSIBLE" in name as well as Performance. No lugs to catch on ladders and other in-the-way obstacles—nothing to wear holes in stacked hose.

Easier and faster to couple up! Tough enough to take the gaff!

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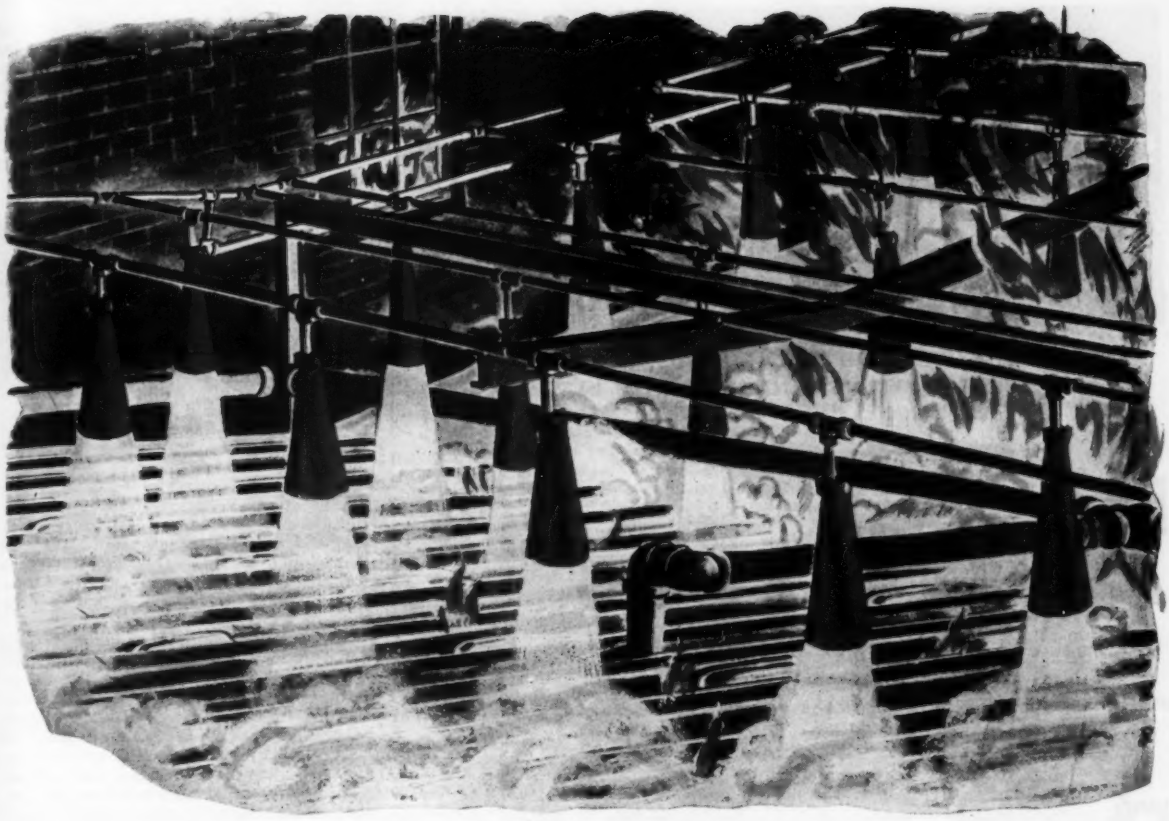

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• Yes, Kidde built-in systems choke off flammable liquid fires (Class B) —or electrical equipment fires (Class C)—in *less than twenty seconds.* When *automatic* systems are used, fires are often suffocated before nearby workers realize a blaze has even *started!*

Ordinary water-type extinguishers cannot stop these tough fires. But they can be quickly smothered under clouds of swift carbon dioxide gas—dry, inert, odorless and non-toxic. And that's the Kidde method! It leaves no after-fire mess, no contamination of mixes or fluids, no damage to electrical equipment. That's why the Kidde system is recognized as one of the speediest, cleanest, safest means of fire extinguishing in use today.

Check the accompanying list of typical industrial fire hazard areas—for safety's sake. If there is one of these danger spots in your plant, call in a Kidde representative — he'll be glad to discuss your fire protection problems.

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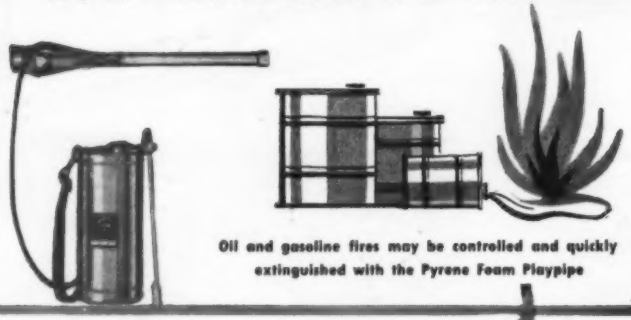

Oil and gasoline fires may be controlled and quickly extinguished with the Pyrene Foam Playpipe

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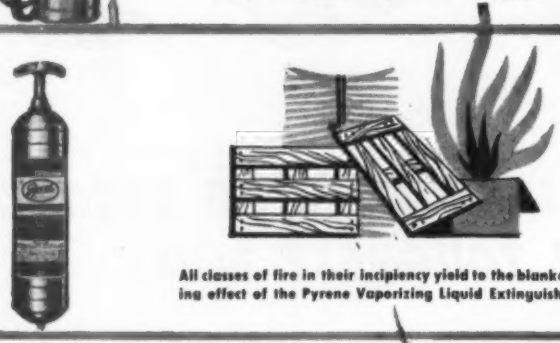

All classes of fire in their incipiency yield to the blanketing effect of the Pyrene Vaporizing Liquid Extinguisher

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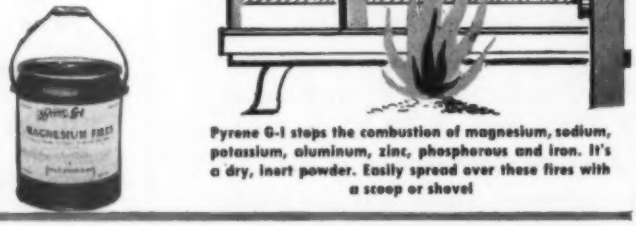


Pyrene G-1 stops the combustion of magnesium, sodium, potassium, aluminum, zinc, phosphorous and iron. It's a dry, inert powder. Easily spread over these fires with a scoop or shovel

Without fire fighting knowledge, a smoldering fire may become a roaring holocaust and without proper fire fighting equipment your property may be completely destroyed. Standardizing on dependable fire equipment and knowledge of which type to use on what class of fire means maximum Fire Protection.

BY THE WAY: WHEN DID YOU LAST TEST THE FIRE EXTINGUISHERS IN YOUR HOME?

Pyrene Manufacturing Company
Founded 1907
NEWARK 8, NEW JERSEY
AFFILIATED WITH THE C-O-TWO FIRE EQUIPMENT CO

particles of water toward the zone of combustion, where the up-drafts of air are created; for heated air which rises must be replaced. The inflow of such replacement air serves as the vehicle for the water fog. Although the fog was discharged by the applicator fully thirty feet above the fire, and to one side of it, the fire was nevertheless brought under control. The fog in travelling downward moistened the bulkheads, keeping them from reaching dangerous temperatures.

As to the application of this procedure to handling fires in buildings, several obstacles occur. In the first place, buildings of combustible construction possess concealed spaces, such as within partitions and under flooring through which fire may travel throughout the structure. Extinguishing operations employing fog carried by convection currents would be too slow if the fire had obtained a good start. The fire would not remain on the floor, as in the case of the engine room, but would travel in all directions and do so rapidly. Furthermore, it would not be practical to seal out air, particularly with windows being such a vulnerable factor. Thus for this type of structure the use of the Coast Guard technique would not be indicated.

Where the building is of incombustible construction, but contains combustible contents, the effectiveness of the use of a limited quantity of fine fog as an extinguishing agent would depend upon several factors: (a) inflammability of contents, (b) quantity, (c) presence of channels through which fire may extend, (d) ability to seal off air inflow, (e) extent of open area, (f) obstructions formed by piled stock, partitions, etc.

If combustible material is present in quantity, fire would probably increase in intensity for the heat would likely be generated at a rate greater than that at which it could be absorbed by fog carried by convection currents to the zone of combustion. Materials such as encountered in Class A fires are not as susceptible to this mode of extinguishment as are oil fires in engine rooms. They would require a much more concentrated application of fog than would the latter.

It is possible that an adaptation of the Coast Guard method might prove effective. Such adaptation would include the use of a multiplicity of fog nozzles in such a manner as to flood the entire area with fog, depending upon convection currents to carry fog to inaccessible points at which fire may be burning. Furthermore, fog deposited on combustible materials not involved by fire should aid in preventing extension of fire.

Blank Walls Check Firemen

(*Continued from page* 308)

building is as old as the firm and the firm has been in business 75 years. There were two freight elevators; two stairways; three hoistways; corrugated iron shutters on six freight doors at the loading platform in West street. Water pails were the only fire fighting equipment. Previous fires in 1916, 1923 and 1933. No violations. The weather was clear; the temperature 56 and the humidity 74 percent. A southeast wind was so mild that the pall of smoke clouded the neighborhood for hours. The West Side vehicular highway 60 feet from the front of the warehouse and

ut the INDIAN Sign

On Costly Fires This Summer!

An INDIAN FIRE PUMP Uses Only Clear Water

No chemicals necessary. Any stream, hydrant or other water supply serves for quick filling. Bottom of 5 gal. tank is recessed away from the ground adding strength to withstand rough handling. All seams are double locked and soldered. Many **INDIAN FIRE PUMPS** have given more than ten years of continual, trouble free service.

An INDIAN FIRE PUMP Carries Slung on the Back

Adjustable straps permit carrying an **INDIAN FIRE PUMP** high on the back like an Army pack. Nothing jostles against the hips causing fatigue. This is an important feature when it is necessary to carry pump for hours in fighting a large fire. Military tests prove that weight distributed high on the shoulders is least tiring.

Order Now — **Hot Weather Will Multiply the Many Needs for these Portable Fire Fighters!**

This is the time to check over your supply of **INDIAN FIRE PUMPS** and see how many you'll require for summer. Note in photo at left how these "one man fire departments" enable operator to go right up to the fire and go to work on it. No hose to lay. Quick. Simple. You will be amazed at the many uses for **INDIAN FIRE PUMPS** — they are the all 'round extinguishers for grass, brush, building, awning, roof, tent and rubbish fires!

"They Are Dandy"

D. B. SMITH & CO.
Utica, N. Y.

I am enclosing check and wish you would send an INDIAN FIRE PUMP to Harry L. Mason, Mathis, Texas.

I have some of your INDIAN FIRE PUMPS and think they are dandy. I would not be without them.

J. B. STEVENS

"A Great Fire Fighter"

D. B. SMITH & CO.
Utica, N. Y.

About a year ago I bought one of your INDIAN FIRE PUMPS and I want you to know that I am very well pleased with it. It is fool-proof and works freely and easily and has already been put to good use. It is a great fire fighter.

H. J. BORCHERT

Catalog, copies of testimonials from fire departments and price list will be sent promptly upon request. Write us today.

FOR INSIDE AND OUTSIDE FIRES USE

INDIAN

Clear Water

FIRE PUMPS

. B. SMITH & CO.

406 Main St., UTICA 2, NEW YORK

PACIFIC COAST BRANCHES:

HERCULES EQUIPMENT & RUBBER CO., 435 Brannan St., San Francisco, Cal.

Davis Co. Third St.
Carco-Carshik Co. 520 S.W. Pine St.
The Carshik Co. Klamath Falls.
Mill & Mine Supply 2700 4th Ave. So.

25 feet above the street, was a convenient elevation from which four hose wagons with deck pipes did very effective work with water supplied by a fireboat.

Approximately 30 streams attacked the fire for two or three hours. Some of these were perched on the parapet of the adjoining eight story fireproof warehouse to the north and which was not damaged by fire but only slightly by water. Two water towers were used effectively. Ladders of three aerial trucks were rigged as improvised towers. Heavy streams from the roof of a one-story modern freight station in Washington street in the rear of the fire avalanched water onto the roof of the burning warehouse.

The first alarm was recorded at 9.05 A.M. from Box 304 at West and Watts; at 9.11, special call for Tower No. 1; at 9.14, special calls for Fire Patrols 2 and 3; at 9.18, pressure increased from 125 to 150; at 9.20, second alarm; at 9.26, third alarm; at 9.51, pressure raised to 175; at 10.12, fourth alarm; at 10.13, special call for Tower 2; at noon, special call for another section of the Fire Patrol; at 6.47 P.M. special call for Searchlight 1—a total of 20 engines, five trucks, one rescue, three boats, two towers, four patrols, one ambulance, one fuel tank and one searchlight. Eleven engines, three trucks and two fireboats changed location.

First alarm contingent operated under Division Chief Tim Guinee; Asst. Chief-In-Command John J. McCarthy was in general charge after the second alarm and until the arrival on the fourth alarm of Fire Commissioner Patrick Walsh who is also the Fire Chief of New York. The Salvage Corps operated under Chief William Espy. Deputy Commissioner Harry M. Archer, M.D., treated a score of fire fighters for minor hurts and smoke. Investigation of the fire was conducted by Chief Fire Marshal Thomas P. Brophy and Asst. Marshals William Cassidy and Jacob Winkler. Their findings were not completed up to the time this report was written.

The water volume was 8,268,580 gallons of which 291,580 came from a fireboat—the two other boats having been dismissed for security reasons. The 7,977,000 gallons supplied by the high pressure system of the Dept. of Water, Gas & Electricity, came from four pumps (two each) in the West Side and the East Side stations. The cubic area of the warehouse is 795,000 feet. The water volume was 1,105,425 cubic feet or 1.38 times the cubic content of the building. Maximum volume was at 11.00 A.M. when the H.P. system was doing 19,200 GPM at 175. When the H.P. system was shut down at 1.52 A.M. April 10, the smoldering ruins were kept in control with handlines from pumping engines at L.P. hydrants. These watch lines were maintained for several days.

PROTECTION—PLUS SAFETY and COMFORT

BUY MORE BONDS AND KEEP THEM

WITH THE ACME FULL VISION All-Purpose GAS MASK

MR. FIRE CHIEF! Your firemen need the best gas mask protection they can get when they are required to enter burning buildings where unknown gases and fumes may prevail. The Acme Type FD FULL VISION All-Purpose Gas Mask has withstood many severe tests under actual fire conditions. This mask provides Safety, Comfort and Non-Distorted FULL VISION to all sides, and is approved by the U. S. Bureau of Mines.

The Acme Mask and Canister protects against Carbon Monoxide, Organic Vapors, Ammonia Fumes, Acid Gases, Toxic Smokes, Fumes, and Smoke Suffocation.

WRITE FOR ILLUSTRATED FOLDER and PRICES

ACME PROTECTION EQUIPMENT COMPANY, INC.
Manufacturers
3616 LIBERTY AVENUE Cable Address: ACMEPROCO PITTSBURGH, PA. U.S.A.

Black Light—a New Aid to Firemen

(*Continued from page 309*)

tends to reduce the number of false alarms, at least temporarily.

Chief Capes became vexed at the increasing number of false fire alarms in his district and decided that some heretofore untried remedy was required. Ever the student of research, he had heard remotely of the "black light" and believing that at any rate, he had nothing to lose, purchased the apparatus with his own funds and began to experiment.

His experimental period finished, Battalion Chief Capes decided that S-195 luminous powder, used in conjunction with the black light apparatus, would point an accusing finger at any sounder of a false alarm.

Knowing which of the 250 fire alarm boxes in his battalion were giving the most trouble, Chief Capes made the rounds, "doped" his boxes with the powder and sat back to await results.

He had not long to wait. On October 7, 1944, Chief Capes responded to an alarm which proved to be false. A civilian pointed out one Peter P. Atchko of Verona, Penna., a nearby borough, as the person sounding the alarm. Chief Capes immediately placed Atchko under arrest and had him removed to the nearest police station. Once arrived, he proceeded to plug in his black light apparatus to the nearest wall socket, allowed it to heat for a moment and then focused it upon the hands of the suspect. The brilliant greenish glow was immediately apparent, convincing veteran police officers that the right party had been apprehended. Again, three weeks later, Chief Capes responded to an alarm, which also proved to be false. This time there was no convenient bystander to tip him off as to the identity of the culprit. However, Chief Capes recalled that an old offender, then at liberty on parole, lived only half a block distant.

TODAY... *gunners stake their lives on this*

Truly a life preserver in the stratosphere! The Scott Portable Oxygen Supply, often called a "walk around bottle", enables gunners and other crew members to disengage their masks from the main oxygen line and move about the ship for regular duties. It also provides requisite breathing-oxygen when the main supply is destroyed in combat.

Scott Air-Pak
BREATHING EQUIPMENT

TOMORROW... *Industry Will Win New Safety*

● Yes, out of the wartime welter will emerge many constructive *new* methods for protecting human life. Among them will be Scott Air-Pak Equipment for industrial service. Backed by the experience of Scott engineers in developing breathing equipment for combat service, tomorrow's Scott Air-Pak will play a new role: providing respiration insurance for workers in mines, for firemen in smoke choked buildings, for maintenance men in gas storage tanks—to name just a few of the many potential applications. Soon—very soon we hope—Scott Air-Pak Equipment will return to peacetime activities!

SAFETY APPLIANCE DIVISION

Scott
AVIATION CORPORATION
LANCASTER, N. Y., U. S. A.

● With complete comfort and peace of mind, maintenance workers equipped with Scott Air-Pak will *safely* work in the deadliest of fumes.

He drove immediately to the residence of Maurice Carlucci and, as in the Atchko case, had him arrested. Once again the black light apparatus came out, was connected and proved that Carlucci, the parolee, had sounded another false alarm.

In Magistrate's Court Chief Capes was able to give so convincing a demonstration of the apparatus that both Atchko and Carlucci were held for grand jury action.

Chief Capes would be probably the last to claim that he has the cure for the false alarm pest because, as in all criminal procedure, the law applies here —"First catch your man."

However, Battalion Chief Robert G. Capes, who is Stationed at Engine Company No. 8, Broad Street & Euclid Avenue, Pittsburgh, Penna., is satisfied that his new departure is having a measure of effect.

Fire Apparatus Controls Revoked by WPB

Limitation Order L-43, issued February 27, 1942, governing production and delivery of new motorized fire apparatus, has been revoked, the War Production Board announced on May 1. Manufacturers still are subject to the restrictions of certain other WPB orders, however. WPB specifications for the production of fire engines having capacities of 500 and 750 GPM are automatically revoked along with L-43.

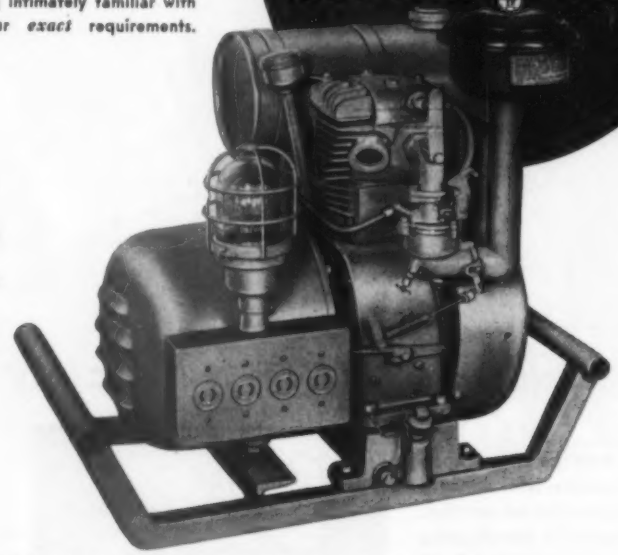
Included among the items formerly restricted by L-43 are: aerial ladder and service ladder trucks; squad, salvage and rescue cars; hose trucks, certain types of pumpers and other self-propelled fire apparatus.

Thus cities can now purchase just about whatever type of fire apparatus they want, and of any design they may choose. Manufacturers, however, may encounter considerable difficulty in securing materials for the manufacture of such apparatus.

Use of materials in the production of motorized fire apparatus previously was limited both by L-43 and by various materials conservation orders, such as M-65 (cadmium), R-1 (rubber), and M-43 (tin). Control over the use of materials will continue to be exerted by applicable "M" orders. Manufacturers also will continue to be subject to priorities regulations, Controlled Materials Plan regulations and other general orders.

This new 1500-watt U. S. Portable meets your own specifications of what a fire department portable should be—because it is the result of our many years of experience building fire department units and becoming intimately familiar with your *exact* requirements.

New
FIRE DEPT.
1500 WATT PORTABLE



★ Designed for *dependable* operation—a vital requirement for fire department service.
★ Automatic voltage regulation under all loads. No adjusting necessary.
★ 4-cycle air-cooled engine. 3.2 H.P.
★ Quick starting.
★ Positive splash system lubrication.
★ No fussing to mix oil and gasoline.
★ Carriers for easy portability.
★ Larger and smaller sizes available.

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ARMY E NAVY

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Smith-Meeker Engineering Co.....125 Barclay St., New York 7, N. Y.
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Atlas Engine Co.....Salmon Bay Terminal, Seattle 99, Wash.
Loggers & Contractors Machinery Co.....240 S. Clay St., Portland, Ore.

What's Burning

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of April, 1945. These figures compiled from the telegraphic reports, are based on estimates made at the time and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent losses in thousands of dollars.

Month Ending April 30	Losses in Thousands of Dollars
Los Angeles, Cal.—Plant of Menard & Tabery, Inc., decoration manufacturers, destroyed; adj. lumber yard of Otis Lumber Co. damaged	125
Brownwood, Tex.—The Coggin Avenue Baptist Church destroyed	125
Quebec, Que.—Uppertown St. Sacrement Parish Hall destroyed; adj. St. Sacrement Caisse Poullaire, damaged	170
Charlottetown, P. E. I.—Provincial exhibition buildings damaged	60
Albion, Ind.—Noble County Highway Department garage destroyed	80
Plymouth, Ind.—Plymouth Lumber Co., Hanes garage and three dwellings, destroyed	80
New Orleans, La.—Warehouse of Eddy Furniture Co. destroyed; also warehouse of Favret Construction Co. damaged	50
Omaha, Neb.—Caesar's Country Club destroyed	50
Pemberton, N. J.—Pemberton Lumber & Millwork Co. plant, northern outskirts, and 19 box cars on Pennsylvania Railroad siding destroyed	1200
Alliance, Ohio—Bldg. occupied by Ray Dye pharmacy, variety store of the Stamp, and five apartments destroyed; adj. Mount Union Bank Bldg. damaged	80
Chico, Cal.—Call-Me-Whit Market destroyed	50
Los Angeles, Cal.—Bldg. housing United Produce Co. and six other produce firms damaged	50
Mancos, Colo.—Warehouse and repair shop at conscientious objector's camp destroyed	50
Ortonville, Minn.—Shumaker block occupied by Ortonville Independent, grocery store and offices	125
Rochester, N. Y.—Yards of Charles C. West Coal Co. damaged	60
Huntington, W. Va.—Arena Gardens Sports Auditorium destroyed	80
Alhambra, Cal.—Seventh Moulding Supply Co. plant and John Anslinger & Son plant destroyed	80
Elmira, Ore.—Long Tom Lumber Co. destroyed	50
Burlington, Vt.—The Smith block in the business district damaged	50
Winnipeg, Man.—House of Ashkans, Ashkanas Synagogue, destroyed	50
Alameda, Cal.—Alameda Naval Air Station aircraft pier and aircraft carrier dock damaged	80

Do you know what your lines will actually DELIVER?

only the

DYNA-STAT

will indicate the difference between DYNAMIC (flowing) pressure and STATIC (line) pressure

The Difference is Important to YOU!

Consider one series of tests scientifically conducted with DYNA-STAT. The results showed that out of 14 hydrants tested only 3 were satisfactory. Of the rest, three showed faulty deliveries resulting from 90% or more pressure loss, the rest averaging 50% loss. Remember—no pumper would pull thru these outlets where faulty flow exists, a greater volume than a comparative line pressure would push thru that same outlet.

A summary of these tests will be mailed on request.

VULCO
PRODUCTS CO.
407 W. 36th ST.
NEW YORK 18, N. Y.

Get the facts now—write—

Mamaroneck, N. Y.—Westchester Sun and Surf Club, Orienta Point, destroyed.... 50
Syracuse, N. Y.—Foundry of E. C. Stearns & Co. destroyed 450
Morgantown, W. Va.—Tipple at Koppers coal division's Everittville mine damaged 125
Chicago, Ill.—Red River Lumber Co., the Lillie Lumber Co., Lord & Bushnell Lumber Co., White Pine Lumber Co., the Landes Mill Co., Silver Creek Co. and Grundy Mining Co. damaged..... 3000
Chicago, Ill.—Ashland Lumber Co. damaged 125
Atchison, Kan.—Blair Bldg. damaged..... 60
Tilton, N. H.—No. 2 plant of Gibson Woolen Mills destroyed..... 80
Lynbrook, N. Y.—Woolworth bldg. destroyed 80
Coldwater, Ariz.—Schneiders' Drugstore, Hutchins' Cafe and Avondale Market destroyed 50
Iroquois Falls, Ont.—St. Anne's separate school damaged 80
Los Angeles, Cal.—Defense industry materials warehouse destroyed..... 800
Marysville, Cal.—Warehouse of Hughes Variety Store damaged..... 50
Los Angeles, Cal.—Tire Repair establishment destroyed; also adj. surplus Army truck storage and salesroom. Several dwellings were damaged..... 50
Springfield, Mo.—Factory bldg. of E. S. Lurie Manufacturing Co. engaged in making Army clothing, damaged..... 225
Los Angeles, Cal.—Hill Bros. Chemical Co. plant damaged 50
Americus, Ga.—Chambliss school bldg. destroyed 50
Beckley, W. Va.—Raleigh Laundry Dry Cleaning Co. destroyed..... 80
Mankato, Minn.—Bldg., occupied by Natl. Tea food store and Pierce's ready-to-wear store, damaged 50
Laramie, Wyo.—Elks Club bldg. damaged 50
Myrtle Creek, Ore.—Myrtle Creek Lumber Co. destroyed 225
Vancouver, B. C.—Plant of Atlas Iron and Smelters Co. damaged 80
Huntsville, Ala.—Dixie Warehouse damaged 425
Los Angeles, Cal.—Southland Paper Converting Co. plant destroyed..... 125
Medford, Mass.—C. S. Borggaard Motor Transportation Co.'s garage destroyed.. 60
Portland, Ore.—Western Mattress Co. destroyed 50
Glendale, Cal.—Bldgs. occupied by Woods & Sebella Metal Polish Co., Richardson Pattern Mfg. Co., Alloy Metal Products Co. and Brown Core Co., destroyed..... 50
Seaside, Ore.—Anchor Restaurant and five adj. businesses destroyed 50
Wilkinsburg, Pa.—Higgins Lumber Co. yard, offices and planing mill, destroyed. 450
White Salmon, Wash.—Twin Harbor Pole Factory destroyed 60
Montreal, Que.—Standard Sack Supply Co. bldg. damaged 80
Los Angeles, Cal.—Kelly Cleaning Plant, barber shop and shop of James Patterson, adj., damaged 60
Los Angeles, Cal.—United Battery Co., Inc. plant destroyed 50
St. Cloud, Minn.—Corn packing unit of St. Cloud Products Assn. destroyed..... 80
Belgrade, Mont.—Gallatin Farmer's Gas Station destroyed 50
Portland, Ore.—B. F. J. Johnson Lumber Co. destroyed 150
Hamilton, Ont.—Garage of Canada Coach Lines damaged 80
Wauchula, Fla.—Hardee County High School bldg. destroyed..... 100
Windsor, N. C.—Carolina Co-operage Plant destroyed 60
Vancouver, B. C.—Chipmaking and storage bldgs. of S. C. Pulp & Paper Co., Ltd., Port Alice, damaged 125
St. Johns, Nfld.—United Towns' electric bldg. and a Govt. liquor warehouse destroyed 650
Walnut Grove, Cal.—Moline Chevrolet agency and garage destroyed..... 50
Chicago, Ill.—Main assembly plant of C. R. John Co., mfrs. of trailers for the Navy, damaged 80
Spencer, Ind.—Pierson Block, occupied by Parr Variety Story, offices of Public Service Company of Indiana, Englehart Shoe Repair Shop, Crory's barber shop, Indiana Loan Co. and several small offices and shops, damaged 80
Rumney, N. H.—Dairy of Earle M. Varney destroyed; his adj. home damaged..... 60
Prineville, Ore.—Prineville Packing Co. destroyed 60
Los Angeles, Cal.—Shell Oil Co. butadiene plant damaged 170
Lansing, Mich.—Warehouse used for storage of Jury-Rowe Co., and Barker-Fowler Co. destroyed; Rikerd Lumber Co. shed and kiln in same block destroyed and finishing mill damaged 125
Rochester, N. Y.—Lumber storage shed of Crouch & Beahan Col, Lumber and Paint Co. destroyed 60
Milwaukee, Wis.—Warehouse containing paper cartons filled with beer bottles of Pabst Brewing Co. destroyed..... 60
Los Angeles, Cal.—Price Pfister Mfg. Co. plant and Cannon Electric Development Company plant damaged..... 50
Los Angeles, Cal.—Modern Foundry & Pattern Co., in suburban Vernon, damaged. 225
Lakewood, Ohio—J. W. Kelley Co. plant, producers of industrial oil and heat treating products, destroyed..... 170
Eugene, Ore.—Austa Lumber Co. destroyed 50
Novato, Cal.—H. Bini genl. store damaged 100

Here's the

Quicker, Safer Way to Put Out Fires

The Universal Nozzle provides the *quicker* way to put out fires because the hoseman can change the type of stream in an instant for any sudden change in fire conditions. The Universal Nozzle provides the *safer* way to put out fires because it can put a 130 degree water curtain between the hoseman and the flames . . . also in an instant . . . while retaining a solid stream, if desired. The Universal is the versatile nozzle, proved by seven years of actual use under all conceivable conditions.

Solid Stream • Fog • Water Curtain
or Any Combination
with

The **UNIVERSAL NOZZLE**

Satisfied Users Include

The U. S. Army and Navy at their air stations, the U. S. Coast Guard on its vessels, in addition to industries and municipal fire departments everywhere.

Write for Details

Inquiries about this remarkable nozzle are invited. Dealers, industries, and fire departments will be sent full details without any obligation.

L. N. CURTIS & SONS
Emergency Equipment
451 Hudson St.
OAKLAND 9, CALIF.

Correction

In the March issue of FIRE ENGINEERING under "What's Burning" a $125,000 fire in the Merchants' National Bank Building was attributed to Montgomery, Ala. Chief R. L. Lampley of that city advises us that there is no Merchants' Bank there, nor did his department have a $125,000 fire.

News of the Manufacturers

Motorola Radiotelephone Directory

The Galvin Manufacturing Company, makers of Motorola Radiotelephone Systems, 4545 Augusta Blvd., Chicago, Ill., has recently published a comprehensive directory of Motorola Radiotelephone Systems and Radio Transmitters licensed by the Federal Communications Commission as of March 15, 1945. Only FCC licensed Motorola radio equipment is included in the listings which are by States, and include City Police Depart-

ONE SERVICE *to* ANOTHER

RADIO communications — long established as the "strong right arm" of Police Departments throughout America — will play an increasingly important role in Fire Department operation in the future.

Link
PORTABLE EQUIPMENT FM and AM

695B — AM Pack Set

Fire officials, seeking guidance as to the type of radio equipment to adopt can well "take a leaf" from the book of associates in police work who have found that Link Radio Communications Equipment is engineered, designed and built to meet the needs of the exacting emergency services.

Link Equipment is already on the job and making good for many Fire Departments, which will join Police users, also forestry, railway, public utility, government and others who have made Link FM the *preferred* radio Communication Equipment—preferred because of proven performance.

CHelsea 2-1100

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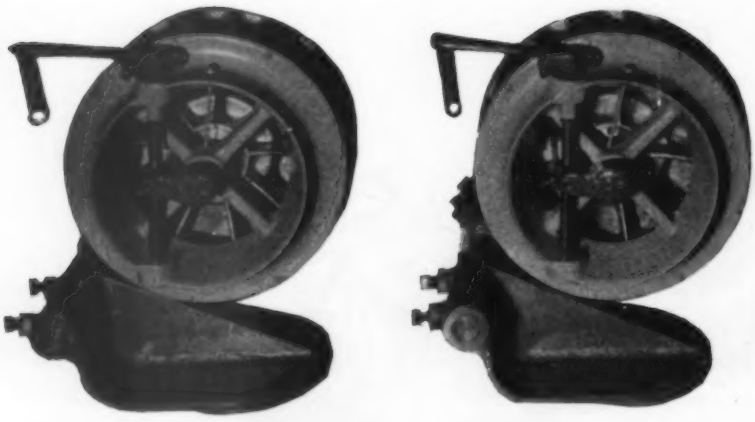
PREFERRED *FM* RADIO COMMUNICATION EQUIPMENT

MANUFACTURED UNDER LICENSE OF THE ARMSTRONG PHASE SHIFT MODULATION PATENTS



H.O.R. Mechanical Sirens
REG. U.S. PAT. OFFICE

YET UNEQUALED
MOST POWERFUL SIREN
FOR FIRE APPARATUS
AND CHIEFS' CARS

SOME IN SERVICE FOR OVER 10 YEARS. MANY OF THEM WITH OVER 150,000 MILES ACTUAL SERVICE WITHOUT REQUIRING ANY REPAIRS.

BOOKLET ON REQUEST

H. O. R. Co., Inc.
6-10 BROAD ST.
STATEN ISLAND 4, N. Y.

EDDY
Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience goes into their manufacture and they embody valuable and exclusive features.

Write for the FACTS.

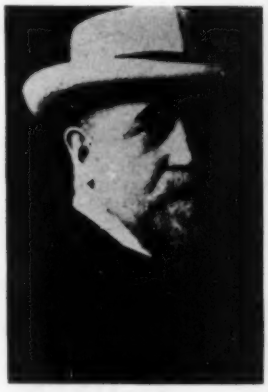
EDDY VALVE CO., Waterford, N. Y.

ments, County Sheriffs and Highway Departments in one listing; State Police and Highway Patrol Organizations in another, and "Special Emergency Groups" such as Public Utilities, Railroads, Taxi-Cab Companies and Experimental Licenses in another.

It is reported that over 1,000 Radiotelephone Systems including 34 for State Police, have been sold and installed by Motorola during the past four years.

Wooster Brass Acquires Hart Line

Announcement has just been made by John C. Schellin, President of the Wooster Brass Company, Wooster, Ohio, that the Company has purchased the patent rights and patterns of fire stream appliances formerly manufactured by the M. H. Hart Company.



The late M. H. Hart

Milton H. Hart, the inventor of these appliances, and one of the best known figures in the fire department field, was New York manager of the Fabric Fire Hose Company for several years, which company participated in the manufacture of the Hart line until 1905. Toward the end of that year, Mr. Hart established his own company and took over a plant for the manufacture of them. This plant was located in Newark, N. J. Later he moved his establishment to Hartford, Conn., where he secured new manufacturing facilities. He continued to produce the specialties until his death in the late twenties.

The Wooster Company plans to produce many items of the Hart line, adding improvements to fit them for present day advanced fire fighting techniques.

Fire Retarding Paint Announced

A new Underwriters approved paint which protects wood and other materials against fire hazard is announced by the General Detroit Corp. and the General Pacific Corp. Called Fi-Repel, it is endorsed by Underwriters' Laboratories and other leading testing bureaus for protection of all interior combustible surfaces.

Fi-Repel is made for use in factories, warehouses, hangars, garages, schools, hospitals, hotels, homes, and wherever fire protection is necessary.

Full details may be obtained by writing the General Detroit Corp., 2270 West Jefferson Avenue, Detroit 7, Mich., or the General Pacific Corp., 1800 South Hooper Street, Los Angeles 21, Cal.

Looking toward the post-war years . . . when expanding civilian air traffic will make adequate crash fire protection a "must" . . . Detroit City Airport has met the challenge with this big-capacity, fast-acting Cardox Airport Fire Truck.

This truck . . . the first of its kind to be made available to a civilian airport . . . is a highly specialized fire-fighting unit, based upon experience gained in producing hundreds of Cardox Airport Fire Trucks for military bases in the United States and abroad.

Self-contained . . . highly mobile . . . geared for easy maneuverability . . . it packs the terrific wallop needed to knock out crash fires fast and make possible speedy rescue of plane personnel. *Two tons* of liquid CO_2 can be released onto the fire zone in approximately one minute, if necessary. Backing up this big supply of zero-cold, fast-acting carbon dioxide is 220 gallons of foam solution . . . which blankets exposed gasoline and hot metal surfaces during and after extinguishment to prevent possible reignition.

Overwhelms Vicious Crash Fires With Amazing Speed

Cardox Airport Fire Trucks are the only mobile units which combine the two fast, efficient extinguishing mediums in these large quantities to conquer the vicious fires that can result when a big plane crashes. Crash fires involving heavy bombers, frequently carrying thousands of gallons of aviation gasoline, have been literally overwhelmed by this "mass attack" . . . permitting rescue of personnel in *seconds* after the Cardox Truck reached the scene of the crash.

Pictures shown above were taken during demonstration held at the Detroit City Airport. Small picture at left shows fire at its height. Center picture shows the beginning of the attack by the Cardox Truck, discharging CO_2 at the rate of approximately 4000 pounds a minute. Picture at right—*made 30 seconds after extinguishment was begun*—shows all fire extinguished.

New Bulletin Gives Full Facts

Airport authorities facing the problem of adequate fire protection for present and post-war operations should get full details on design, operation and performance records of Cardox Airport Fire Trucks. Write today for Bulletin No. **1955.**

CARDOX CORPORATION
BELL BUILDING • CHICAGO 1, ILLINOIS
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CARDOX
CO_2 FIRE EXTINGUISHING SYSTEMS

THE SHOPS OF EDWARD A. BRASS
of Shreveport, Louisiana
is honored to announce that

THE ARMY–NAVY PRODUCTION AWARD

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MARCH 30–1945

CRACKERJACK FIRE HOSE

DEPENDABLE FIRE HOSE SINCE 1907

Above all, fire hose must possess durability and strength. Over the years, Crackerjack Fire Hose has consistently met these tests of quality.

Specify Crackerjack, *the fire hose you can always depend on!*

The AMERICAN RUBBER Mfg. Co.
Park Avenue and Watts Street • Oakland, Calif.

Walter Kidde Co. Appoints Insurance Relations Engineer

Walter Kidde & Company, Inc., of 140 Cedar Street, New York City, and Belleville, N. J., manufacturers of approved fire control equipment, announce the appointment of John J. Caldwell

John J. Caldwell

formerly of the Underwriters' Laboratories, Factory Insurance Association, Century Indemnity Company and the Standard Surety & Casualty Company of New York, as their Insurance Relations Engineer. Mr. Caldwell will keep in close touch with insurance requirements and developments, and will serve as liaison officer between the Walter Kidde Company and the insurance field.

General Detroit Opens Branch in Dallas

F. Dale Bacon, General Manager of the Fire Extinguisher Division of the General Detroit Corporation, announces the opening of a new branch and warehouse in Dallas, Tex. S. M. Luce has been appointed Division Manager in charge of this office.

The Dallas branch will handle distribution of General Detroit products in the South and Southwest. This supplements the Corporation's other branches located in New York, Chicago, Washington, Boston, Los Angeles, San Francisco, and Seattle. General Detroit products are also distributed through 22,000 local outlets in all parts of the country. These have available the services of a General fire "protectioneer" to prescribe the right protection for every fire hazard.

Fire Extinguisher Chart Published

Randolph Laboratories, Inc. have prepared a new Fire Extinguisher Installation Guide illustrating which extinguishers should be used and installed for the different kinds of fires that may break out. The guide has a gummed back and may be pasted over any fire extinguisher in a plant.

The Installation Guide divides fires into the standard "A", "B" and "C" classifications, with large illustrations of typical fires in each division. Also pictured are the extinguishers to be used, including carbon dioxide, carbon tetrachloride, soda-acid, foam and pump tanks.

Designed for notebook insertion as well as wall-posting, the Installation Guide can be filed as quick reference for plant safety departments, fire fighting schools, employee demonstrations, etc. Quantity copies are available from Randolph Laboratories, Inc., 8 East Kinzie Street, Chicago 11, Ill.

Classified Advertisements

WANTED

Fire Equipment Supply Companies, to sell Morning Pride Protected Rubber Firecoats, with Wing Sleeves, Chest Protector, Face Protecting Collar, Wool Wristlets, Double Shoulders, No Dirt Pockets. Also Firepants and Mitts. Write Morning Pride Mfg. Co., 1986 Home Ave., Dayton 7, Ohio.

CHIMNEY POWDER

No need to send men on the roof for chimney fires. Has-Mor Soot Destroyer not only puts the fire out, it continues to work until it cleans the chimney, making it unnecessary to go back to another chimney fire. Put up in handy packages. Agents wanted. Harry S. Morgan, 32 Broad St., Johnson City, N. Y.

AGENTS WANTED

Agents wanted to sell SOS Automatic Glass Ball Fire Extinguishers. Thousands sold. Good proposition. Write

Schwartz Bros., Inc. (Dept. A)
731-33 Filbert Street
Philadelphia, 6, Pa.

"FIRE-KILLER"

A superior Dry Chemical compound, now sold in buckets for use in factories, garages, schools, etc. 10-qt. size. Price, $15 retail. Also our popular hand cylinder, retails $3. Agents wanted. Liberal discounts. Exclusive territory. Fire Killer Mfg. Co., 107-A North Franklin St., Syracuse 4, N. Y.

FOR SALE

One H. & H. Inhalator complete — first class condition. Price, $80.00. Edward J. Hart, Chief, Bureau of Fire, Endicott, N. Y.

FOR SALE

1919 Maxim 450 gallon Pump in good and serviceable condition—Converted booster tank and hose —Tools and other equipment—Body capacity 1200 ft. of 2½" hose — Deck over hose bed — Ladder racks and other essentials—Spacious for personnel and other special equipment. No reasonable offer refused. May be seen for test, etc., at Fire Headquarters, Watertown, Mass. For further information write Chief William C. McElroy, Fire Department, Watertown 72, Mass.

Ex-Chief Frank Tracy Dies

Ex-Fire Chief Frank E. Tracy of Woburn, Mass., died on April 20. He had recently passed his 91st birthday.

Chief Tracy had the longest career in fire fighting of any member of the Massachusetts Fire Chief's Association. He was born in Boston on March 7, 1854, and came to Woburn in his early years. In 1881, he joined the volunteer company of fire fighters in Cummingsville, where he resided at the time. In 1891 he became assistant chief engineer of the company and continued as a call fireman. He was elected call chief in 1908.

In 1915 the Woburn Fire Department was motorized and Chief Tracy was made executive chief and in 1917 he was appointed permanent chief, which position he held up until his retirement on July 16, 1939.

Chief Tracy was a member of the

FIRE CHIEFS—

BEFORE YOU BUY YOUR NEXT QUANTITY OF FIRE HOSE GET IN TOUCH WITH

QUAKER

More and more Fire Chiefs from all sections of the country are becoming Quaker minded. The Fire Hose that you can depend upon when action gets at fever heat. It is flexible, easy to handle, coils readily and dependable at all times.

Have and give your city complete fire protection with Quaker Fire, Chemical and Suction Hose.

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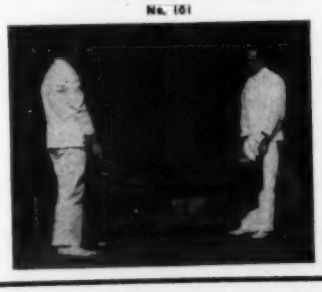

Every casualty, no matter how slight or how serious, can be made worse by rough, improper handling. Reeves Stretchers can be used in the most inaccessible places.

If your dealer cannot supply you write to:

A. SMITH & SON, Inc.
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$14.50 PHILADELPHIA, PA.

PORTABLE — **GENERATING PLANT**

Designed to produce the maximum output per pound weight, plant is particularly suitable where portability is a factor.

Meets the standards of the aircraft service. Over 100,000 are now in use in the armed forces.

Truly a heavy duty, high capacity, lightweight, sturdy, streamlined, compact and portable plant. Will stand the most severe operating conditions.

A complete line of floodlight projectors, extension cords, live circuit reels and receptacle boxes.

Write now for complete details.

***Security* FIRE EQUIPMENT CO.** 1550 PRINCETON AVENUE TRENTON, N. J.

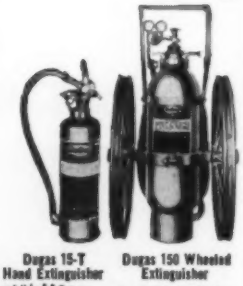
● You need never be unprepared for a second fire when DUGAS Fire Extinguishers are used. . . because you can *EASILY, QUICKLY* recharge them, on the spot.

As soon as one fire is killed, you have only to refill the chamber with PLUS-FIFTY DUGAS Dry Chemical, slip in a fresh cartridge, and IMMEDIATELY you're ready for the next, which might occur *ANYTIME.*

DUGAS Extinguishers require minimum maintenance, because they need no periodic recharge. In arctic cold or tropic heat, they retain their fire fighting effectiveness.

Easy to handle and operate. . . these portable DUGAS Extinguishers give the fire fighter maximum protection, because the dry chemical rolls up a heat-shielding screen in front of him as he moves in to snuff out the fire.

Constant fire protection like this can be yours. Write today for further information.



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Approved by Underwriters' Laboratories, Factory Mutual Laboratories, and Governmental Agencies.

AN ANSUL PRODUCT — duGas — THE MASTER OF FLAME

ANSUL CHEMICAL COMPANY, MARINETTE, WISCONSIN
DUGAS DIVISION

Massachusetts Fire Chiefs' Club and served that organization as president in 1931. He was an Honorary Member of that Association. He was also a member of the International Association of Fire Chiefs and the New England Association of Fire Chiefs.

He is survived by his wife, two daughters, Mrs. William Clark of Providence, R. I., and Mrs. Edward Callahan of Woburn; three sons, Frank E., Jr., of Wethersfield, Conn., Harold J. of New York City and Hubert W. of the American Fire Equipment Company, Boston, Mass.; two sisters and thirteen grandchildren.

Ex-Chief August Emrich Dies

Ex-Chief August Emrich, head of the Baltimore, Md., Fire Department from 1912 to 1932, died on April 28.

Chief August Emrich

Chief Emrich was born on November 15, 1862. He became attached to the Fire Department as an unpaid substitute back in in 1883. On June 6, 1884, he was appointed a regular fireman and was paid $1.10 a day. He was advanced to Lieutenant on January 1, 1891; Captain, March 1, 1895; Battalion Chief, April 1, 1896; Deputy Chief, January 1, 1909; Chief of Fire Department, March 2, 1912. He retired on November 15, 1932.

Chief Emrich was an Active Life Member of the International Association of Fire Chiefs, serving that organization as State Vice-President in 1932.

The Baltimore Conflagration of 1904 gave Chief Emrich his hardest fight. When Chief Horton was injured, Chief Emrich assumed command and worked steadily for a week, except for small snatches of sleep, until the conflagration was fully under control.

Some of the improvements that Chief Emrich had established were a marine division, a high pressure water system, and the two-platoon system.

Major Fred Shirk Dead

Word has been received that Major Fred K. Shirk was killed in action in Northern Italy on February 14. His death was the result of an automobile accident when the jeep he had been driving missed a bridge over a large canal.

Major Shirk was serving with the Fifth Army as a Camouflage Officer and as Army Fire Marshal. His work

was mainly camouflage, fire fighting and accident prevention.

Readers of FIRE ENGINEERING will remember him as the author of an article describing the fire protection equipment of the Sicilian and Italian fire departments.

His wife, Dorothy M. Shirk and his five-year-old son, Fred, Jr., survive.

Chief John F. Healy Dead

John Francis Healy, for thirty-three years Chief of the Denver Fire Department, died in St. Joseph's hospital, Denver, April 26, at the age of 72. He had been in poor health since February last when he suffered a shoulder fracture in a fall.

Chief John F. Healy

Chief Healy was born in Tralee, Ireland, February 11, 1873, and came to Denver with his father when seventeen years old. For four years he worked with his father, who was a contractor. In September, 1894, he made application to become a city fireman and he was appointed to Engine Company No. 15. In those days the apparatus was horse drawn and the department consisted of seventy-five men.

Chief Healy was made lieutenant in September, 1899, and Captain in February, 1900. He was appointed Assistant Chief on April 1, 1903. With the retirement of Chief Owens on August 1, 1912, Chief Healy was made head of the fire department.

Always active in nationwide fire service matters, Chief Healy rose through the vice-presidencies of the International Association of Fire Chiefs to become president, in 1920-1921. He was a member of numerous fire service organizations and in 1930 was tendered a testimonial dinner in recognition of his thirty-sixth year in the department. Again, in 1932 he was given the greatest demonstration ever given a Denver public servant up to that time, when more than 200 business and professional civic leaders tendered him a dinner at which he was presented, among other gifts, with a silver loving cup, containing $800 in gold pieces by the fire fans of the City. Members of the fire department presented him a diamond studded ring.

Surviving Chief Healy are two sons, John F., Jr., an attorney, and First Lieut. Thomas V. of the Army; a daughter, Mrs. Andrew J. Doomer, of Pueblo, Colo., and four grandchildren.

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with

Randolph "4"

CARBON DIOXIDE FIRE EXTINGUISHER

Few people think about fighting fire until they actually face the flames.

That's why it's so important that *every* fire extinguisher in buildings, shops and factories operates *easily—quickly—thoroughly!* Randolph "4" speeds and simplifies industrial fire defense. It chokes gasoline, oil, paint, machine, electric fires—instantly. Hits the blaze before the fire can spread!

Approved by the Underwriters' Laboratories, Inc.

Mobilize against fire with Randolph fast-action carbon dioxide. For complete details and prompt service, call your supply house, or write us—today.

ONE HAND ACTION! Just a thumb-touch discharges carbon dioxide. With no valve or nozzle to adjust—it's PANIC PROOF. A safe gas, it leaves no trace. Will not deteriorate or freeze.

Send for our new, **FREE** booklet "Sharpshooting at Flames." Illustrates fast CO_2 fire-fighting.

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Now—because of the Government's prohibition of the use of nickel, brass, copper, nickel plating, and chromium—we are making these badges and insignia in sterling silver, sterling silver gold plated, rolled gold on sterling silver and 14 karat gold.

Today—for just a little more, you get a sterling silver Braxmar Badge—without doubt the best badge you can buy anywhere.

The blue covered catalog is the latest published but write for our new price list, effective July 29, 1943. Only prices in the catalog on 14 karat gold items are still in effect. A special Fire Dept. circular is now in preparation. Watch for your copy.

C. G. Braxmar Co., 242 W. 55th St., N. Y.
JOHN O. VEIT, Pres.

BRAXMAR BADGES

Standard for over 60 years

HIGH PERFORMANCE

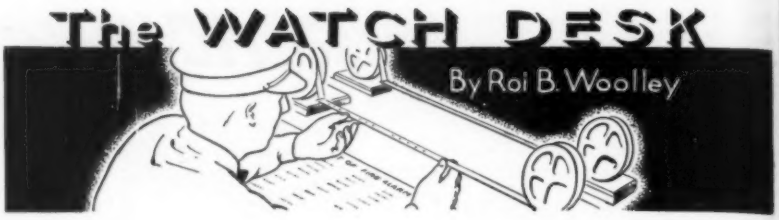
Adequate volume and adequate pressure produce High Performance—a valuable factor to keep in mind when buying your next pumper.

High Performance is characteristic of Hale Fire Pumps, built for Fire Engines . . . and built to rigidly upheld standards of dependability.

For High Performance . . .
Standardize on Hale Fire Pumps.
Information on request.

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

The WATCH DESK



Our inquiring reporter overhauls the firemanic news of the day

Write Your Own Caption

On the way to a fire with Truck 156 of Brooklyn, N. Y. C., Eileen, the company's feline mascot, suddenly left her nest in the line net five blocks from the station house at 1635 E. 14th Street, Brooklyn, and streaked for home as though her tail were afire.

The firemen doused the small blaze at 174 W. 6th Street and returned to the station house, where they examined the net in which Eileen had been reposing. They found three just-born kittens. Eileen, the coy mother, was waiting placidly in her elaborate bed which the Brothers had already built in the cellar for her expected accouchement.

* * *

Grass Widows for Grass Fires?

The manpower problem has caught up with Westport, Conn., and Chief Frank Dennert is casting his optics about for more volunteers. Dennert reported the enforced closing of the Vigilant Hose Company, leaving Westport with four units. So far, war has taken 65 active volunteers, he said, and he adds "unless the situation eases I'm going to man our switchboard with girls, and I am seriously considering training a group of them for fighting grass fires." Our informant tells us the chief doesn't care whether they're "grass" widows or not.

* * *

Hot Off the Ticker

Speaking of home work—in Cementon, Pa., Laurel Fire Company vamps answering an alarm found their own newly renovated fire hall afire. . . . Pawtucket, R. I., Valley Firemen's League is het up over discovery that threads in many fire districts don't match those of next district, hence effective mutual aid isn't! . . . When firemen of McKeesport, Pa., went to fight a blaze which gutted the Fifth and Walnut Bldg., they attempted to use hose installed in the People's Building across the street, but found it rotten and unfit. . . . Lack of an adequate fire alarm system was claimed responsible for failure of Roseland, N. J., firemen to respond promptly to a dwelling fire. When siren failed, Essex Fells vols were summoned. . . . *In Chattanooga, Tenn., passage of new police and fire pay raise plan is said to advance salaries of regular firemen* $10 *more a month than salaries received by lieutenants and* $5 *more a month than present captains make!* . . . Bristol, R. I., is having "personnel and pumper problems;" Board of Fire Engineer's report stresses failure of pumper and lack of personnel on day shift responses. . . . Buster, a mongrel dog, saved lives of two Queens, N. Y. C., women by barking an alarm of fire in which he later perished. . . . *Officials of the Boyer Fire Apparatus Co., Logansport (Ind.) were no end upset, say papers, when half their plant burned, March 14th* . . . Truck 2, N. Y. F. D., in heart of night club society has moved into rear of Engine 8, a block away from its old quarters, and the Chief of the 8th Batt. is now ensconced in a brand new pent house. Truck 2's old quarters will become part of the Glass Hat nightclub operated by Belmont Plaza Hotel. . . . The Ohio House of Representatives has passed measure authorizing State institutions to contract with local fire departments for fire protection outside city limits. This would permit 11 State institutions to have "adequate protection" for the first time, according to Welfare Director Frazier Reams. . . .

Investigation by the Richmond, N. Y., County district attorney's office indicates there was no criminal negligence in the collision Feb. 5 between the tankers Pan Clio and Spring Hill which resulted in death of 19 and injuries to 122 others (see March F. E.). . . . Fire Chief Waldo Merrill of Council Bluffs, Ia., wants 10 more men to supplement 40 now in department. . . . Three Boone, Ia., firemen were injured when ceiling of auditorium fell in a church fire. . . . Fire, breaking out in a trolley air pump, in Philadelphia, Pa., failed to excite 12 women passengers. They remained seated while another car pushed the burning vehicle several blocks to a firehouse where blaze was ousted! . . . Fatalities due to train-automobile collisions on Long Island R. R. continue to mount. In latest, four men were killed at Bellmore, L. I., when their car was struck by a train, shoved 700 feet along the track where twisted wreckage caught fire, the flames spreading to interior of a coach before Bellmore firemen could extinguish fire and remove bodies. . . . A fireman's police squad of 16 men was formed by Valley Stream, L. I., Fire Department Council. . . . Dennis Haggerty, 14, N. Y. C., was hospitalized when cigarette lighter fluid spilled on his clothes and burst into flame. . . . One fireman, Felix D'Axignon, 43, Mechanicsville, N. Y., was killed and three injured—two seriously—when their fire truck was in collision with D. & H. R. R. train. . . . . Grassbrush fire season was ushered in by Missouri when more than 20,000 acres of timberland blazed in hundreds of fires in Ozark regions. Town of Camdenton was one of several threatened, but its 900 citizens staved off disaster. . . . Clarence Brown of St. Louis knows just how a baseball fan feels when he is really burned up. Watching a sandlot game, last summer Clarence was struck by a line drive and promptly burst into flames. . . . Fire of undetermined origin which threatened entire business section of Hialeah, Fla., on Feb. 21 did estimated $100,000 damage. Hialeah is one of the famous tracks laid up for

the duration. . . . The Uniformed Fire Officers Assn., newly formed N. Y. C. organization of Fire Department Officers of all ranks, has held first election. . . . Three hundred inmates of State Hospital of Tewksbury, Mass., were led or carried out to safety on night of Mar. 15 as flash fire swept chapel where they were attending motion pix party. . . . About 100 pedigreed dogs, 10 Jersey cows and prize bull were burned to death in fire that destroyed barn and kennels of a veterinarian near Blue Bell, Pa. . . . Firemen, paying tribute to their two colleagues, killed Jan. 9 were interrupted at ceremony in fire station of Eng. 36, Park Avenue, N. Y. C., when they were called away to a false alarm. . . . *Charles R. Denny, Jr., was nominated by President Roosevelt to membership of Federal Communications Commission. He has been General Counsel and succeeds T. A. M. Craven, who resigned.* . . .

* * *

It's in the Bag!

If you don't believe this, scold Battalion Chief Ole Collins, Grand Forks, N. D., who's the contrib'. This is about a freak fire which cost a Grand Forks housewife her electric vacuum cleaner.

It all started when Mrs. H. E. Hanson accidentally picked up a match with her cleaner when vacuuming a parlor rug. Shortly afterward, the machine began to smoke, so Mrs. Hanson took out the dust bag, emptied it and doused the burning contents in the snowdrift. The snow made the bag a bit damp, so she hung it on the clothesline to dry out.

About an hour or so later, when she stepped outside to get the bag she found only the clothes pin on the line, and the metal ring of the dust bag and a few fresh ashes on the snow below. Now Mrs. Hanson is praying for a loosening up of priorities.

* * *

IT'S THE LAW!

Liability of City for Dump Fire

The city is not liable for negligence in maintaining a dump since it was not established that the dump was maintained in an improper manner and since the city would not have been liable even if the fire (which is was claimed had its origin in the dump) originated from the dump unless the city had been maintaining a nuisance. *Gordon v. Murray City*, 151 *Pac.* (*2d*) 193 (*Utah, Sept.* 8, 1944).

Firemen Can't Engage in Other Work

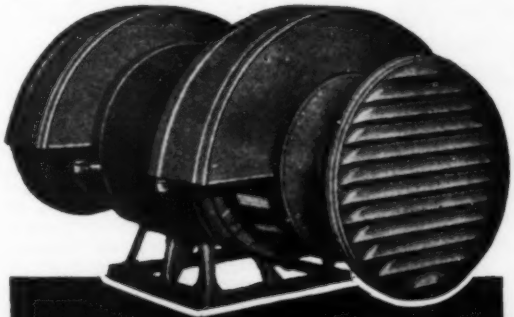
The rule of the City Fire Department prohibiting firemen from engaging in another business while off duty is valid and, therefore, firemen's dismissal for being employed as a senior time study engineer in an aircraft company should be upheld. *California v. Walsh*, 49 *N. Y. S.* (*2d*) 829 (*N. Y. Sup. Ct., N. Y. Co. July* 26, 1944).

Hours of Work and Rest Periods

Under the statutory amendment providing that each fireman "in addition to receiving a minimum of 24 hours off duty in each period of 48 hours shall receive an additional period of 24 consecutive hours off duty in each period of 14 days" held to allow only a double period off duty every two weeks and not three consecutive rest periods. *State ex rel Caleb v. King* (*City of East Cleveland*) 56 *N. E.* (*2d*) 267 (*Ohio Aug.* 2, 1944.

This emblem, which identifies one of the Nation's most complete lines of department supplies, is known and respected wherever fire fighting equipment is used. It is the mark of thoroughly sound design and extremely high quality.

ELKHART BRASS MANUFACTURING CO. Inc.
Elkhart, Indiana



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GENERAL ALARM SIREN
You Can Depend On It *ALWAYS*

An absolutely dependable, tried and proven siren for communities of all sizes. Loud, clear, simple to instal and no maintenance to bother with. Embodying the "know how" of the oldest and largest makers of siren signals in the fire field. Write for descriptive literature and list of towns using the model "M".

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manufacturers of a complete line of apparatus sirens.
Write for literature.

STERLING SIREN FIRE ALARM CO., Inc.
55 Allen Street Rochester, New York

THE NEW LOW PRICED
WHEAT
Rechargeable Spotlight

MODEL 158

NOW AVAILABLE FROM STOCK—ADAPTABLE TO ANY REDUCED BUDGET

FEATURES

- Less expensive operation than dry cells.
- Free use of hands. Light carries conveniently on shoulder strap.
- Positive "Non-spill" construction.
- Light can be focused and directed as desired.
- Weighs only 92 ozs. complete.
- Simple to charge and water. No need to take lamp apart.
- Low price and operating cost make Wheat adaptable to any reduced budget.

2,500 FOOT BEAM
25,000 CANDLE POWER
1,000 HOURS OPERATION

KOEHLER MFG. CO.
MARLBORO, MASSACHUSETTS

The ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

SPREADING LIFE NETS BENEATH LADDERS DURING RESCUE OPERATIONS

THE discussion in this round table is a continuation of that which appeared in the April issue of FIRE ENGINEERING on the practice of spreading life nets beneath ladders when rescues are being made.

The generous response from our readers made it necessary to carry the discussion over to this issue.

Readers are invited to send in their comments on this subject which will by necessity be carried over into the June issue. Address communications to Round Table Editor, FIRE ENGINEERING, 24 West 40 Street, New York, N. Y.

HERE IS THE QUESTION

It is a practice of some fire departments to spread life nets under ladders when rescues are being made.

1. Do you believe this to be a desirable practice?

2. If so, why?

3. What, in your opinion, might be arguments against this procedure, if any?

Discussion of the Topic

Edward T. Rose, Chief, Wheeling, W. Va.: I do not believe in the practice of spreading a life net under a ladder in ladder rescues for the following reasons:

There is no ladder company and hose truck coming first on the scene sufficiently manned to raise a fifty-foot ladder; the ladder truck takes six men and possibly five men on the hose truck. You would not have enough men to raise a ladder, go up through the building with a hose stream, with the view of bringing the people down the steps and ventilating. There are more persons rescued down the steps than by ladder.

The net would also be in the road of other companies coming in with hose lines and ladder trucks. It would also be an invitation to the people in the windows to figure that you had placed the net for them to jump into. If they were in the fourth or fifth story windows, they could not hear you shout "not to jump" and quite naturally might jump into it. You would not have enough men to man the nets for a jump that high.

In my opinion, it would be a very foolish thing to do at the scene of a fire, where the men are needed for other ways of rescue and extinguishing the fire.

Newton Lavery, Chief, Burlington, Vt.: My opinion of the question is that it would be a possible practice, but not a desirable one.

It might be possible that a multiple rescue would be necessary and the only way to save persons in the building would be to have firemen ascend the ladder and assist the people in the proper way to jump into a net. However, this should be put into practice only as a last resort, and no one should be asked to jump until all other avenues of escape were cut off.

It is not always possible to have sufficient manpower to properly hold these nets and firemen who might be called upon to rescue people should always consider the danger to life and limb, especially so because very few people have ever had any occasion to act in this manner.

I had the experience of rescuing a mother, son and daughter, from a third floor window and almost had to use force, because none of them would come out the window until the other two were out. I finally took the daughter (15 years old) over my shoulder. I had the mother slide out the window in front of me. The son (16 years old) followed the mother. Luckily we all descended the ladder to the ground safely, but had there been a few more minutes' delay, it would have been too late to rescue all three down that ladder. In a case like this, if it were possible to have a life net, it might then be termed one instance where this could be called a possible practice and a necessary action.

W. M. Mullins, Chief, Roanoke, Va.: The Roanoke Fire Department has never given thought to using life nets in securing anyone by means of a ladder. If a fireman is well trained in bringing a person down a ladder, I don't think a life net is necessary. Our ladder companies carry only five or six men to a company. If one or two men are rescuing a person by ladder, there would not be sufficient men to operate the net.

H. E. Fisher, Chief, Lansing, Mich.: Most fire departments do not have the manpower to handle rescues by

ladders and life nets. I don't think it good practice with the modern power ladders of today.

Sam J. Crow, Chief, Decatur, Ill.: The practice of spreading life nets under ladders when ladder rescues are being made, no doubt provides a safer method in the event someone should fall from the ladder. However, such an accident seldom happens.

In the event there were several persons being rescued and they were allowed to descend the ladder without the aid of firemen, then perhaps the need of nets would be more necessary. Even in this particular instance the firemen would caution everyone not to become excited and take their time going down the ladder. To a great extent, cool-headed firemen can allay fear and panicky conditions during such a situation. Spreading life nets might hamper the firemen in extinguishing the fire and become an obstruction. Moreover, and especially today, every fire department has the same problem, the manpower shortage. The average fire department would not have an adequate force of men to spread nets, especially if there was much fire involved within the building.

Grover L. Frock, Chief, Springfield, Ohio: I cannot see any great advantage to spreading life nets under ladders when rescues are being made. To begin with, most life nets are from eight to ten feet in diameter and would be hard to manipulate under the average length ladder if they are set properly. Also, the shortage of manpower would make it prohibitive in most departments. It would also be hard to tell from which side of the ladder the fall would come. Although I believe in nets at drill towers where pompier and rope rescues are being practiced in the course of regular training, I do not believe it is a practical idea for emergency work at fires.

E. P. Feaster, Chief, Lincoln, Neb.: I do not believe the use of life nets under ladders in rescue work is necessary, except in extreme cases where due to the overloading or iced condition of the ladder, there would be some danger of some inexperienced person falling. Our experience shows that when rescue work from a ladder is necessary, other detailed work demands the attention of the firemen to such a degree that it would not be practical to tie up the services of enough men to handle a life net safely on all occasions.

Frank A. Northcutt, Chief, Covington, Ky.: I yould say that we in our department do not make it a practice of spreading life nets under ladders when effecting a rescue for the following reasons. We believe it more important that ladders be placed in proper positions so that this would not become necessary. If the proper amount of help is used, we think there is more safety on the ladder without the net than there would be if one man attempted to rescue knowing that the net were below him should he fall or let fall the victim. Safety in properly placing ladders with sufficient men to man them is, in my opinion, most necessary. If six or eight men are used to hold the life net, that means less men to handle the ladders and perform the rescue work.

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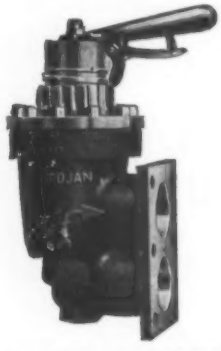

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R. C. McRonald, Chief, London, Ont.: I believe life nets might be used with aerial ladders for they are the only type which would provide sufficient room to operate the net.

In operating with a ladder of fifty feet or less length, there would not be sufficient room between the building and the ladder to operate a life net. There are always the inevitable wires, cornices, telephone and electric-light poles, signs, etc., plus the ladder and tormentor poles.

Whenever it is necessary for a life net to be used immediately, it is not advisable to spend time in raising ladders until after the essential rescue work has been done and a further search is being made. Then the net might be used to prevent further possible accidents.

J. J. Fitzpatrick, Chief, Pueblo, Colo.: I believe the practice of spreading a life net underneath a ladder is a desirable practice provided enough men are available to carry out the evolution.

* * *

The following replies are in answer to a previous discussion on the use of military insignia on firemen's uniforms.

W. J. Scott, Provincial Fire Marshal, Toronto, Ont.: What you really need to completely discourage any idea of changing from the ancient insignia of fire departments is to hear Brigadier C. C. Hewitt, Commandant of the British National Fire Service College give his illustrated lecture on the origins of fire department insignia, some of which dates back literally thousands of years and much of it originating from the time of the Crusaders. It is now a definite and important part of the training of all British fire officers that they learn the traditions of the honorable insignia they wear.

Assuming that members of the fire department all know the badges and distinguishing marks of their own officers, one question that might be asked is just how important it is that the public know the precise rank of an officer. In this regard you might consider the perplexity of the visiting fireman or fire chief from Canada who if he did remember that in the United States Army silver is more important than gold, he would hardly be expected to remember the order of leaves, stars and bars.

As a counter proposal to adopting Army insignia, may I suggest following the example of the Navy. Actually there is a precedent for this in the fire services, for in designing insignia for the Corps of Canadian Fire Fighters who have recently returned from two and a half year's service in Great Britain, it was decided to follow the example of the U. S. Navy, the Canadian and the British Navies, and the R. C. A. F. and R. A. F., by using rings of a circular band of braid, around the sleeve just above the cuff. By starting with a single band of braid and increasing the number of bands with the rank, it is very easy for the public to see which is the superior officer at a fire. The fire chief could become admiral-like with a big wide band that no one could mistake. However, I do not know any precedent for this, and probably few chiefs would support the idea that the wide band should be reserved for a uniform created for fire marshals. This last is

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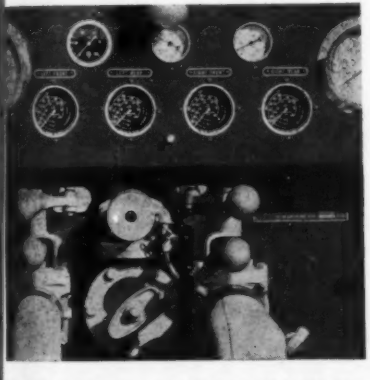

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an idea you might work on, for I have never seen either a uniform or an insignia for a fire marshal yet.

Clarence E. Meek, Mack-International Motor Truck Corp., New York, N. Y.: The round table question on insignia or rank is a good $64 interrogation—which is a $64 word.

In connection with this question of insignia, it is interesting to note the first use of insignia in the fire service.

General Alexander Shaler, a Civil War General, was appointed head of the Board of Fire Commissioners of the Metropolitan (New York) Fire Department in 1867, and finding it in a deplorable state of efficiency, he immediately began to reorganize the department on a military basis. The first use of military titles in the fire service was inaugurated by General Shaler on December 26, 1868, when, in General Order 24, he reorganized the department into brigades and battalions, and established assimilated military ranks. The Order specified that when "speaking to, or of, a District Engineer, Foreman or Assistant Foreman, they shall be addressed or designated as Major, Captain and Lieutenant respectively." The chief was given the military title of colonel, and assistant chief, lieutenant-colonel. Engineers of steamers were designated as sergeants, and when the rank of assistant engineer steamer was established a few years later they were given the stripes of corporals. In ladder companies the first and second firemen were the sergeant and corporal, respectively.

General Shaler then set about finding a suitable device as insignia of rank, and adopted the trumpet as being a distinctive device which could be used in the same manner as the military bars worn by captains and lieutenants. The first use of the trumpet as insigne of rank in the fire service was inaugurated by General Shaler on December 1, 1869.

All insignia were embroidered in gold on a background whose color indicated the branch of service—red for ladder companies, black for engine, light green for chemical companies and blue for chief officers.

Some later predecessor of the modern "brain-truster" thought up the use of the axe, life gun, etc., as insignia devices, although Chicago and other cities still use the trumpet exclusively and indicate the branch of the service by the color of the background.

It also may be interesting to note that in Philadelphia, and some other cities, company officers wear the military bars of captain and lieutenant on shoulder straps, instead of the trumpet.

Personally, I think that the fire service should have distinctive insignia—and the trumpet is absolutely unique to this service. However, I detest the confusion of axes, life guns, etc., and suggest that departments might do well to issue trumpet insignia to all company officers and donate the axes and other devices to the metal scrap drive.

Incidentally, General Shaler established the use of the titles of chief of department, assistant chief, chief of brigade and chief of battalion to supersede the old titles of chief engineer, district engineer, etc.

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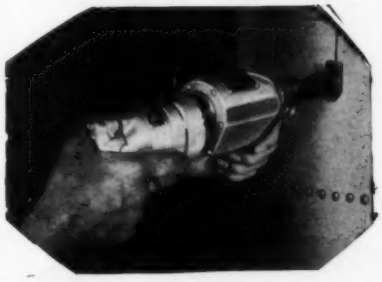

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War Fare

By Roi B. Woolley

Status of Fire Auxiliaries

Now that civilian protection forces are disbanding pretty generally the question arises, what will become of the auxiliary firemen?

There aren't many of these left, what between the draft getting some and others being absorbed by paid and volunteer fire departments, but to those who are still serving the question of their future status is uncertain.

In New York City and in other metropolitan centers where formerly there were sizeable enrollments, the residue of enrollees today are doubtless for the most part "buffs," "sparks," "fans," or what have you, who have always "run to fires" and no doubt always will. In these centers the auxiliaries will no doubt continue to play a part, as long as they are legal entities in the departments. However, once financial compensation or insurance against injury or death is removed, either by the respective community and/or by the federal government, it is doubtful if the auxiliary forces will be more than a memory.

Until that time comes, some cities are making fullest possible use of these emergency forces. In Watertown, N. Y., City Manager C. L. Wood has appealed to the city's wartime auxiliary department to "continue intact after the war in the interests of community service." He has also asked Fire Chief Joseph Dibble to remove the auxiliaries from the present standby basis and make them an active supplement of the regular fire department, primarily because of the manpower shortage.

* * *

Hot Off the War Tape

Thousands of New England and New Jersey workers are thrilled at the news that the incendiaries dropped on Tokyo and other Jap targets were their handiwork. Among the most effective fire-starters is the new M-69 jellied oil bomb. . . . Antwerp, Europe's greatest port, was attacked almost continuously by German V-bombs for four months until the end of January, large areas of the city being devastated. . . . In Leonia, N. J., when the fire siren was sounded for a small attic fire in a residence, the blast for some reason took on unusual new range because for fifteen minutes police of Leonia, Teaneck, Englewood and Fort Lee were busy allaying fears of people who called up thinking an air raid was on! . . . General Electric has announced the development for the Navy of a plastic combining the qualities of fire plus shock-resistance and easy moulding properties. . . . San Diego, Cal., plans to expand its civilian defense organization into a permanent major disaster relief plan, according to Col. Casey Hays, USA Ret. of the Citizens Defense Corps. . . . As late as March 16 London was getting V-2 rocket vengeance bombing, causing some casualties. Since Oct. 1, robot and rocket bombs are said to have killed 686 persons and injured 5,555 in southern England. A U. P. dispatch says that the new German rockets weighed 13½ tons. . . . In Durham, N. C., so-

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called OCD "stirrup" pumps, but actually pump-can extinguishers, have been loaned by civilian defense to the county's smaller schools where regular extinguishers have not been installed. . . . Three villages in Winnebago County, Ill., have filed applications for OCD fire fighting equipment now in possession of Rockford, Ill., civilian defense. Winnebago offers to buy a truck for mounting one unit; Shirland and Rockton each want an OCD 500 g.p.m. pump. . . . In Bellefontaine, Ohio, regular fire fighting equipment has been augmented by acquisition of an OCD trailer pump, "stirrup" pumps, 1051 feet of hose, helmets, etc. formerly used by Lima, Ohio, office of civilian defense. . . . The Chilean Navy's four-masted schooner Lautaro was lost by fire somewhere off the coast of Peru. She was at one time an instruction ship for the German navy. . . . William C. Cleveland, 38, former air raid warden of Elizabeth, N. J., was found guilty of arson, having tried to burn a rug-cleaning establishment. . . . A 500 g.p.m. pump issued to local office of civilian defense of Rockford, Ill., has been loaned to newly organized Rock river fire protection district, near Rockford. . . . *Report of March* 19: *"Two German prisoners of war escaped from an Army ordnance depot at the Reading Fair Grounds today." Fine place to keep German war prisoners, if you askus.* . . . War has had its effect on the N. Y. F. D.—we learn that scarcity of the right kind of wood for fire ladders has made it necessary for that department to go to light weight metal ladders. . . . Commander Harold Burke, NSNR, in charge of Navy's Damage Control fire fighting has returned home from the Pacific area. . . . Jim Thompson, former chief, Irvington, N. J., Fire Department is reported in charge of Navy's fire fighting school at Pearl Harbor. . . .

* * *

OVERSEAS CORRESPONDENTS

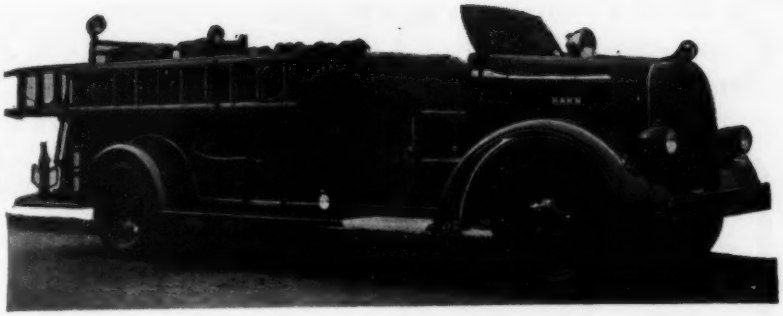
While a party of British Army firefighters was examining a culvert in Italy for the presence of escaping petrol (gasoline) a match was struck nearly a quarter of a mile away. Two were killed by the resulting explosion and four severely burned.

Given oxygen for 3½ hours, from a breathing apparatus set, a girl of nine years, entombed by blast from a flying bomb, was extricated, little the worse for her experience, by London firemen.

Accidents while riding fire apparatus happen in England no less than this country. Responding to an alarm from Brompton, London, fire station, leading-fireman Leslie Langham, 31, fell from the appliance (apparatus) and died in the hospital from a fractured skull. He was adjusting his belt as the apparatus turned a corner, at 8 m.p.h.

Brave Firewoman

When a bomb damaged a fire station in Southern England, recently, leading-firewoman Hemstead distinguished herself. Despite a severe wound in the arm she aided other firewomen down from their shattered quarters and then gave first aid in the station to the NFS personnel and civilians brought in. After she had been working some time it was noticed that one of her sleeves was saturated with blood. It developed that she had continued to work, although as badly in need as those she helped.



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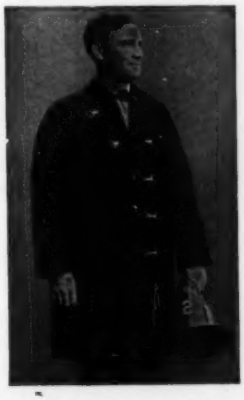

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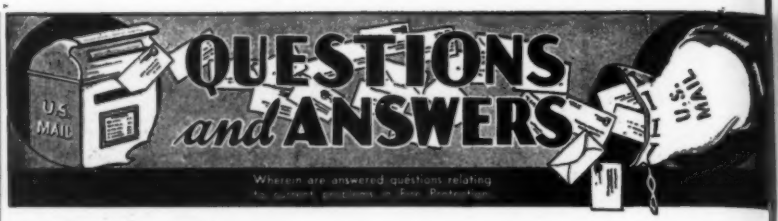

Pump Slippage

To the Editor:

The Massachusetts Fire Service Red Book gives the following as the way to determine slippage in a displacement pump. Is it correct as shown? If so, would you be kind enough to show me in your own figures how it is done? If it is not, please show me the correct way of figuring.

"We have a double pump with 5-inch bore, 8-inch stroke and 1⅜-inch piston rod. The actual displacement is 2.45 gallons per revolution. The nominal displacement is 2.72 minus the piston rod correction of .102 which leaves 2.618. Then 2.618—2.45 = .168. 0.168 ÷ 2.618 = 6.3 per cent." R. S. J.

Answer: The calculations for displacement of a piston pump are correct if the pump is a two-cylinder unit. If it is a single cylinder unit, then the calculations are incorrect.

The displacement of a single cylinder of five-inch bore and eight-inch stroke is 302.28 cubic inches per revolution, that is, for the two strokes. This represents 1.3086 gallons per revolution, of course, making allowance for the displacement of the piston rod.

You'll note the calculations given on the card show the displacement to be 2.618 gallons per revolution. If you multiply the 1.3086 by two, you'll get 2.6172, which is the displacement of the two cylinders per revolution.

The slippage would then be 2.617 minus 2.45, or .167 gallons per revolution.

The per cent of slippage is equal to the slippage per revolution divided by the nominal displacement per revolution, or .167 divided by 2.617, giving a per cent slippage of 6.38.

Suction Connections

To the Editor:

When hooking up an engine to pump, are you supposed to use two soft suctions siamesed into one or is it better to use a 10-foot hard suction?

We have had trouble chafing the soft suctions. The only thing that we have to stop excessive chafing is an old piece of hose split in two; this is put under the suctions. I have the experience of having these pads chafe through and into the suctions. This was due to the excessive pulsation of the pump, which in this instance happens to be a rotary. I have insisted on having regular hose blocks purchased. If the soft suctions are suspended about a foot from the ground, will the hose let loose from the coupling due to the vibration from engine to hydrant after pumping steadily for seven or eight hours? We have the regular 4½-inch steamer connection on our hydrants. I also claim that dirt and sand can work its way between the pads and the soft suction and chafe them. J. F. L.

Answer: Soft suction hose is commonly used because it is quicker in making connection between the pumper and the hydrant. It is entirely satisfactory provided the water supply of the hydrant is sufficient to keep the pumper supplied without dropping below zero pressure at the hydrant.

No sizes of suction hose lines are given, but if the hydrant pressure is maintained at a satisfactory point, and if the suction diameters are small and the pump capacity large, then it would be preferable to use a parallel soft suction instead of a single line of large suction, provided the combined soft suction lines were greater in cross-section area than the single hard suction.

The problem of chafing is a serious one, and it must be guarded against.

It would not be good practice to suspend the soft suction between the pumper and the hydrant, because of the tremendous strain that would be placed on the couplings. A ten-foot length of 4½-inch suction carries approximately 69 pounds of water. But the strain on either coupling might be several times as large as this, particularly where but little sag would be permitted in the suction line.

When taking suction, it is, of course, absolutely necessary to use hard suction hose.

Flow from Hydrant

To the Editor:

Is there any formula for determining the volume of water coming from a hydrant, that is by just having the 2½-inch hose connection open and taking trumpet pitot gauge reading, knowing the size of the main. Or can the volume be determined by knowing the size of the main and taking the static pressure of the hydrant?

The metallic content of our water is such that it is building up the interior with a limestone deposit. This condition is worse in different parts of the city and the static hydrant pressure varies from a low of 48 pounds to a high of 120 pounds.

If no formula can be worked from the various conditions mentioned, can

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you give me a formula for both 6-inch and 4-inch mains so that I can determine the volume coming from the different plugs? C. P. S.

Answer: The formula for determining the flow of water from a hydrant is as follows:

$D = 29.7 \times d \times d \times \sqrt{p} \times .9$

D is the discharge in gallons per minute.

d is the diameter of the hydrant outlet in inches.

p is the pressure in pounds per square inch as determined by pitot gauge.

For example, suppose the hydrant is 2½-inches in diameter and the pressure is 25 pounds per square inch.

Then the discharge

$= 29.7 \times 2\frac{1}{2} \times 2\frac{1}{2} \times \sqrt{25} \times .9$

$= 29.7 \times 2\frac{1}{2} \times 2\frac{1}{2} \times 5 \times .9$

= 835 gallons per minute.

There is no formula available for determinating the flow available in 6-inch, 8-inch or other size mains due to the fact that, as you state, there may be incrustations or other deposits in the main.

The fire flow test is the most satisfactory and certain method of arriving at the available capacity from any main, or system of mains.

New England Chiefs Complete Plans for Meeting

Planning for their postwar days, directors of the New England Association of Fire Chiefs met in New London, Conn,. Tuesday and Wednesday, May 1 and 2, to pave the way for their war conference scheduled on June 26, 27, 28 at the Griswold, Eastern Point, Groton, Conn.

Fourteen chiefs representing all the New England states, were the guests of Chief Thomas H. Shipman of New London at a dinner prior to the regular directors' meeting.

Chief Allan F. Payson, president of the association, presided.

Chief Herbert P. White of Groton will be host of the June conference working together with Chief Shipman of New London.

The three-day conference will be opened by Governor Warren Baldwin.

The banquet will be on the evening of the 28th followed by entertainment furnished by the Connecticut Fire Chiefs Association.

Heading the speaking sessions of the conference will be Edward J. Hickey, Commissioner of State Police and State Fire Marshal who will speak on "The Circus Fire."

The selection of Groton as a conference ground, lands the chiefs into the heart of a naval area. The Coast Guard Academy and the big submarine and Navy base surround the meeting.

Demonstrations on Navy fire fighting, the advancement of "fog" for all purpose fire extinguishing and many other wartime demonstrations are scheduled.

A walkie-talkie program under Chief Paul P. Heinz, New Haven, and Chief Charles French, Manchester, N. H., is to feature one of the sessions.

Secretary John O'Hearn, following the Tuesday meeting in New London, is rounding out a program which the directors believe will be one of the finest educational events ever staged by the association.

ANDREW P. PALMER.

Fire Alarm Gong
DESIGNED AND MANUFACTURED TO STANDARD OR INDIVIDUAL SPECIFICATIONS

TYPE Z-45 ROTARY HAMMER 12" ELECTRO
MECHANICAL GONG

SOUTHERN SWITCH & SIGNAL CO.
Shreveport, La.

CIRCUL-AIR
FIRE HOSE DRYER

- Is easier to use
- Saves drying time
- Reduces hose stretch
- Prevents mildew and rot
- Improves building design
- Air-conditions as it dries

THE CIRCUL-AIR CORPORATION
6339 East Palmer Avenue
DETROIT 11, MICHIGAN

Did the Generals learn from the *Fire Chiefs?*

A good question, when you realize that America's fire chiefs had been using the blitz technique long before the war.

Yes, fire fighting is mechanized warfare . . . fought by trained men with machines and equipment that become more highly developed year by year.

Naturally, the blitz technique calls for a strong, efficient fire hose—one that measures up to the improved equipment. Here at Eureka, we've been making that kind of hose for 70 years. Throughout all that time, firemen and their chiefs have never lost confidence in Eureka's higher performance, greater efficiency and safety.

EUREKA

"For greater protection to life and property"

EUREKA FIRE HOSE

Division of United States Rubber Company

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MAY, 1945

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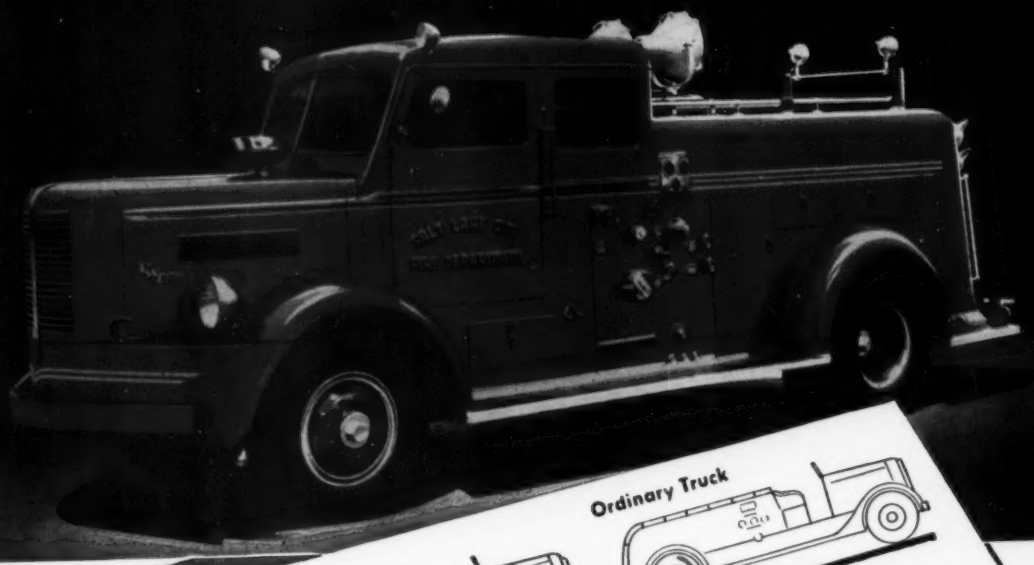


FWDs FIRST

In Speed
In Safety
In Power

FWDs GIVE YOU FASTER GET-AWAY

FWD power on all four wheels makes full use of all the engine power for acceleration. All four wheels grip the road for the get-away as well as for the run. FWDs eliminate the hazards of slippery streets that ordinarily would cause wheel-spin and delay. All the weight of the truck and its load is converted into powered traction with FWDs, whereas only a fraction of an engine's full performance ability is utilized on trucks dependent on only one axle for traction. Seconds count! FWDs win!

WRITE FOR LITERATURE

THE FOUR WHEEL DRIVE AUTO COMPANY, Clintonville, Wis.

Canadian Factory: KITCHENER, ONTARIO

FWDs Go Where Other Vehicles Fail
NO ROADS TOO TOUGH OR STEEP FOR FWDs

EASIER HANDLING AT HIGH SPEEDS

FWD DESIGN balances weight on all four wheels . . . assures easy handling at any speed.

OTHER DESIGNS, with unbalanced weight distribution are difficult to handle at high speeds.

NO SKID, NO SLIP, NO SLUE!

Powered steering traction holds front wheels to direction of turns, thus minimizing skid-danger. Skidding tests conducted on ice show 50% less skidding.

FWD . . . non-skid.

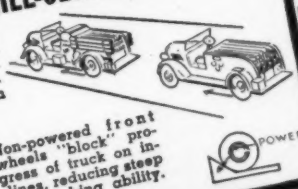
Other designs more liable to skid.

QUICK, POSITIVE, SAFE EMERGENCY STOPS

FWDs have two separate and independent 4-wheel braking systems, with brake drums on each wheel. Combined with properly balanced weight distribution, these provide the most effective braking possible.

GREATER HILL-CLIMBING ABILITY

FWD's front wheel pulling power increases hill-climbing ability. Reserve traction in all 4 wheels.



Non-powered front wheels "block" progress of truck on inclines, reducing steep hill-climbing ability.

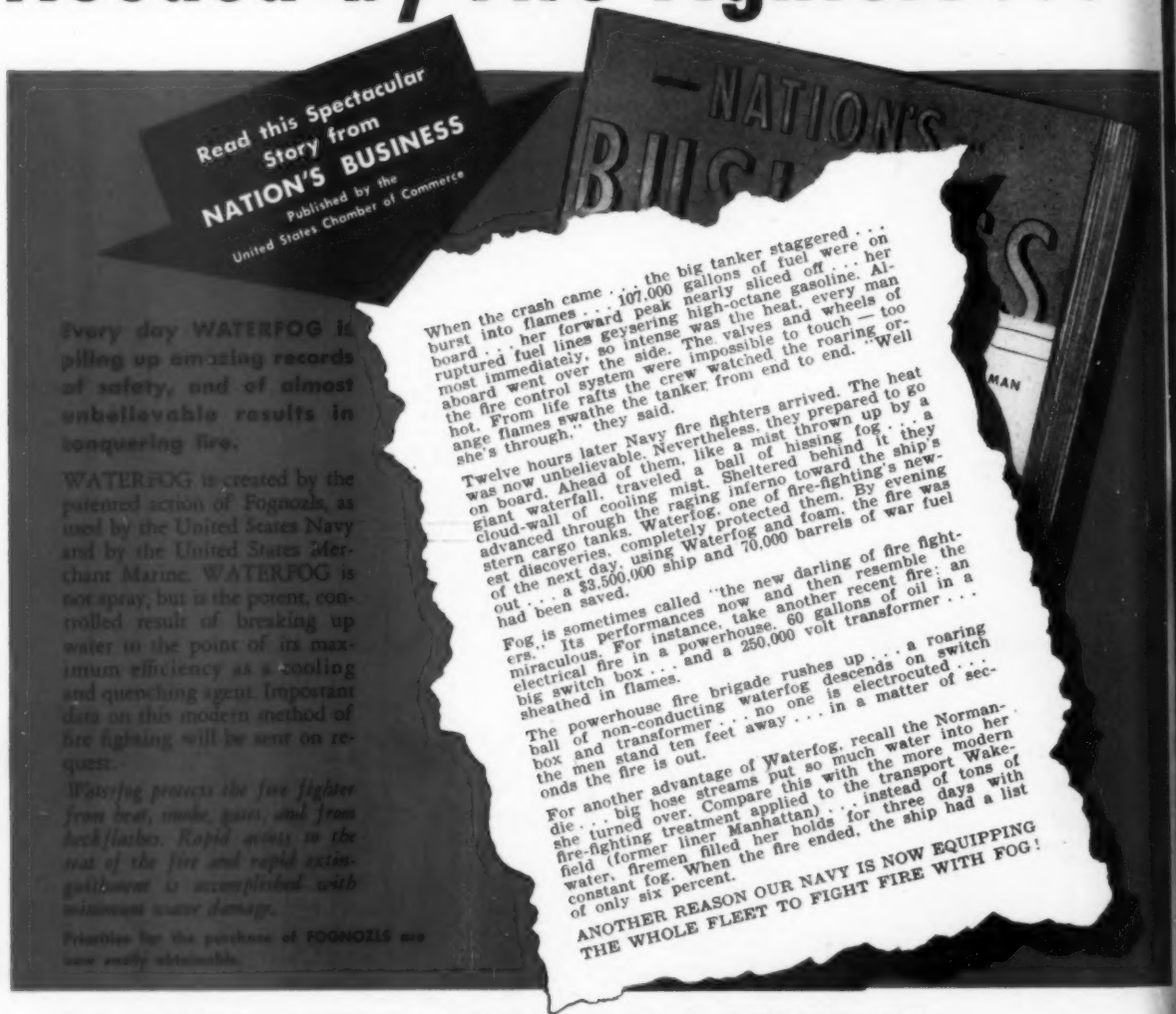
FWD

FOUR-WHEEL-DRIVE *Fire Apparatus*

GETS TO FIRES FASTER and SAFER!

OUT OF THE WAR COMES BETTER WAYS OF FIRE FIGHTING

NOW! The PROTECTION Long Needed by Fire Fighters...


Read this Spectacular Story from
NATION'S BUSINESS
Published by the United States Chamber of Commerce
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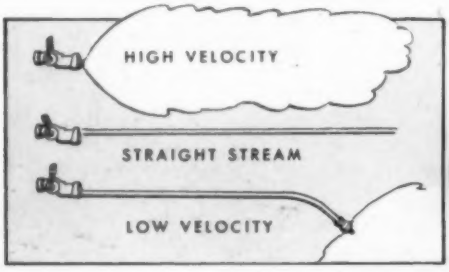
Every day WATERFOG is piling up amazing records of safety, and of almost unbelievable results in conquering fire.
WATERFOG is created by the patented action of Fognozls, as used by the United States Navy and by the United States Merchant Marine. WATERFOG is not a spray, but is the potent, controlled result of breaking up water to the point of its maximum efficiency as a cooling and quenching agent. Important data on this modern method of fire fighting will be sent on request.
Waterfog protects the fire fighter from heat, smoke, gases, and from back flashes. Rapid access to the seat of the fire and rapid extinguishment is accomplished with minimum water damage.
Priorities for the purchase of FOGNOZLS are now easily obtainable.
When the crash came . . . the big tanker staggered . . . burst into flames . . . her forward peak 107,000 gallons of fuel were on board . . . her ruptured fuel lines geysering nearly sliced off . . . her most immediateiy, so intense was the heat, every man aboard went over the side. The high-octane gasoline. Although the fire control system were impossible to touch — too hot. From life rafts the crew watched the roaring orange flames swathe the tanker from end to end. "Well she's through," they said.
Twelve hours later Navy fire fighters arrived. The heat was now unbelievable. Nevertheless, they prepared to go on board. Ahead of them, like a mist thrown up by a giant waterfall, traveled a ball of hissing fog . . . a cloud-wall of cooling mist. Sheltered behind it they advanced through the raging inferno toward the ship's stern cargo tanks. Waterfog, one of fire-fighting's newest discoveries, completely protected them. By evening of the next day, using Waterfog and foam, the fire was out . . . a $3,500,000 ship and 70,000 barrels of war fuel had been saved.
Fog is sometimes called "the new darling of fire fighters." Its performances now and then resemble the miraculous. For instance, take another recent fire: an electrical fire in a powerhouse, 60 gallons of oil in a big switch box . . . and a 250,000 volt transformer . . . sheathed in flames.
The powerhouse fire brigade rushes up . . . a roaring ball of non-conducting waterfog descends on switch box and transformer . . . no one is electrocuted . . . the men stand ten feet away . . . in a matter of seconds the fire is out.
For another advantage of Waterfog, recall the Normandie . . . big hose streams put so much water into her she turned over. Compare this with the more modern fire-fighting treatment applied to the transport Wakefield (former liner Manhattan) . . . instead of tons of water, firemen filled her holds for three days with constant fog. When the fire ended, the ship had a list of only six percent.
ANOTHER REASON OUR NAVY IS NOW EQUIPPING THE WHOLE FLEET TO FIGHT FIRE WITH FOG!

A few exceptional sales opportunities are now available in some sections for agressive representatives.



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